

Gauteng Health Research and Innovation Summit 2018

The Gauteng Department of Health (GDoH) launched its first Health Research and Innovation Summit in February 2018. The theme of the summit was 'Evidence and innovation for long and healthy lives: Confronting risks and unlocking the potentials'. The GDoH expressed a commitment to refocusing its priorities and developing interventions towards achieving National Health Insurance (NHI) goals. By providing efficient and effective healthcare that is evidence-based and through optimising available resources, the GDoH would endeavour to reorganise its function so that health professionals, managers, researchers, academics and patients can all work together on a model of co-production. The summit was planned in that context, and attended by approximately 300 people.

The summit began with 13 diverse skills-based workshops that exposed participants to cutting-edge innovations and critical debates on topical issues in an environment of resource constraints. These topics ranged from patient safety and the medicolegal climate, to employee wellness, data governance, health technology assessment, aligning users' experiences with those of providers and the potential for integration of indigenous knowledge systems and allopathic medicine. This was followed by four plenary sessions and 12 breakaway sessions that confronted the department's progress on its 5-year strategic plan. Together with government officials responsible for service delivery in clinical and non-clinical functions, a range of stakeholders from different sectors deliberated on cutting-edge innovative research that could potentially be translated into achieving best practices. The GDoH promised to engage these stakeholders across the 12 intervention areas throughout this year, returning in 2019 to share the fruits of these collaborations. It is hoped that the findings from the research taking place across the GDoH platform, as evidenced by the abstracts in this issue, will be translated into evidence-based practices that will ultimately improve the health outcomes of our province's population.

L Baldwin-Ragaven, D Basu, M Chetty, N Matlapeng, K Motaung, on behalf of the Scientific Programme Committee, a subcommittee of the Gauteng Provincial Health Research Committee (PHRC), Gauteng Department of Health

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Summit abstracts

1. Factors associated with late initiation of antenatal care among women in Tshwane, South Africa

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Background. Reaching a pregnant woman timeously during the antenatal period is of vital importance in ensuring interventions that will foster her health and wellbeing, and the survival of her unborn child. The South African (SA) National Department of Health recommends that pregnant women initiate antenatal care (ANC) before 20 weeks' gestation. However, existing evidence from developing countries, including SA, indicates that few women seek ANC services during the early stages of pregnancy.

Objectives. This study aimed to determine the factors associated with late ANC initiation among pregnant women presenting at the ANC clinics of two primary healthcare facilities in Tshwane Subdistrict 6: Eersterus Community Health Centre (CHC) and Stanza Bopape Clinic 2.

Methods. A cross-sectional study design was used to collect data from pregnant women attending ANC at the two health facilities. The participants were investigated in terms of the modifiable and non-modifiable sociodemographic, personal and health-system

factors that may be associated with late ANC initiation, by means of a combination of antenatal register review and patient interviews. Data analysis included descriptive statistics and a multivariate logistic regression analysis. Ethical clearance was obtained from the institutional ethics committee at the University of Pretoria. Permission from Tshwane District Health Management to conduct the study was also obtained.

Results. For the antenatal register review, 1 248 pregnant women ($n=315$ at Eersterus CHC, and $n=933$ at Stanza Bopape Clinic 2) were evaluated for the period between 1 July 2013 and 31 December 2013. According to the antenatal registers, the proportion of pregnant women who booked ANC within the recommended 20 weeks' gestation was 57.82% ($n=159$) at Eersterus CHC and 34.99% ($n=324$) at Stanza Bopape Clinic 2. The combined age distribution ranged from 12 years to 45 years, with a median age of 27 (IQR = 22 - 31). At Eersterus CHC, 30.56% ($n=92$) of pregnant women in the register were first-time pregnancies, while at Stanza Bopape Clinic 2, this figure was 28.83% ($n=243$). A total of 430 pregnant women participated in the survey. The proportion of study participants who initiated ANC within the recommended time was 53.02% ($n=228$). The timing of booking the ANC visit ranged from a gestation of 5 weeks to 38 weeks, with a median timing of 19 weeks (IQR = 12 - 25). Multivariate analysis revealed that study participants who had secondary education or more, intended to fall pregnant, and had

a shorter time interval between pregnancy test and ANC initiation were more likely to initiate ANC within the recommended time (OR 0.31, 95% CI 0.94 - 1.02; OR 0.47, 95% CI 0.24 - 0.94; OR 6.56, 95% CI 4.50 - 9.56, respectively) compared with others (OR 5.17, 95% CI 3.73 - 7.17).

Conclusion. Late ANC initiation is prevalent in Tshwane. It is evident that physical and financial accessibility alone is not an assurance of effective antenatal service utilisation. Intensifying information-sharing on timely ANC initiation by service providers at community and health-facility level is imperative.

2. Screening for antenatal depression in women attending the Chris Hani Baragwanath Academic Hospital antenatal clinic

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Background. Perinatal depression is common in South Africa (SA), resulting in a significant burden to those affected, and potentially resulting in long-term negative outcomes for their children. Multiple risk factors exist in our socioeconomically disadvantaged population. The aim of this study was to conduct a screen for depressive symptoms, and describe the demographic features and associated risk factors in a sample of women attending the antenatal clinic at Chris Hani Baragwanath Hospital.

Objectives. To conduct screening for depressive symptoms in order to evaluate the prevalence of a positive screen in this population; to compare biographical information and a positive screen on the Edinburgh Depression Scale (EDS) in order to establish associations with previously studied risk factors; and to describe the attitude of pregnant women towards information and treatment options for depression.

Methods. A cross-sectional and descriptive research design was used. A total of 362 pregnant women was screened, and a questionnaire on demographic features and relevant risk factors was completed. The prevalence of depressive symptoms was calculated, as determined by EDS cutoff scores >13 and >10, together with 95% confidence intervals. The relative risks for an elevated EDS score for each risk factor were determined using binomial regression.

Results. In the sample, 32% had a score >10 on the EDS, and 23.5% scored >13. In the multinomial regression model, a lack of tertiary education, unwanted pregnancy and life stressors during pregnancy were significantly associated with depressive symptoms (score >13). Most patients were accepting of advice regarding depression, and favoured talk therapy as a treatment option (51.9% individual and 18.6% group), while 23.8% would accept medication as treatment.

Conclusions. Antenatal depression is highly prevalent in SA. The detection of associated risk factors is important in determining high-risk groups. The development of appropriate screening, prevention and treatment interventions is important in addressing this common and treatable condition, and preventing its devastating consequences.

3. A determination of time spent on nursing activities in a labour ward in a midwife obstetrics unit

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Background. Determining staffing needs is a priority for organisations seeking to provide safe patient care and to save costs. Registered nurses and midwives provide 24-hour direct patient care to patients. Activity-based norms are recognised by the World Health Organization as the most suitable way of determining staffing needs. This study focuses on timing the activities of midwives during labour in maternity obstetrics units (MOUs), using an adaptation of Hodnett's five categories of labour support as a framework for measuring the activities performed by midwives supporting women in labour. This model was adapted from the previous work sampling study conducted in Toronto by McNiven and Hodnett.

Objective. To determine time taken to perform nursing activities during labour in South African MOUs in the public sector.

Methods. This was an exploratory observational study using a mixed-method design that included both qualitative and quantitative methods. Spot observation studies were conducted during patients' first stage of labour (quantitative), i.e. activities observed and measured during the observation period. Naive sketches were also used (qualitative). The study was conducted in six MOUs in Ekurhuleni, Gauteng.

Results. Activities carried out by midwives in MOUs were mainly reactive to the physiological processes of labour as they occur. Midwives did not display the 'soft skills' referred to in Hodnett's categories of labour support. Their activities were timed, and the calculation of the frequency of nursing activities carried out was particularly successful, but the researcher concluded that while the study was useful in providing insights on the quality of care, the results could not be used as a basis for determining activity-based norms. The tool needs to be simplified.

Conclusion. Categories of labour support can be used for improving patient care and developing activity-based norms.

4. A model for facilitating the teaching of intimate care to nursing students in South Africa

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Background. Intimacy and intimate care are not concepts that are freely used in nursing education, practice and literature because of their sexual connotations. Nursing students provide basic nursing care to diverse patients.

Objective. To develop and describe a model for facilitating the teaching of intimate care to nursing students in South Africa.

Methods. The study utilised a two-phased theory generative design. In the empirical phase, an interpretive paradigm and symbolic interactionism were applied to understand participants'

views of intimate care. Explorative, descriptive and contextual phenomenological qualitative research was conducted. Nine female nurse educators and 25 nursing students, nine of whom were male, were purposively sampled. Data were collected using focus groups and individual in-depth semistructured interviews. Moustakas' 1994 phenomenological data analysis method was used.

Results. Phase 1: Intimate care was viewed as care provided by a nurse that invades the personal and private space of a patient, and requires physical closeness and touch between nurse and patient. Participants reported experiencing feelings of anxiety, discomfort and embarrassment. Often, the touch was misinterpreted as inappropriate and sexual. Intimate care is not facilitated; nursing students are not well prepared and they are not supported when experiencing intimate care conflict. Phase 2: A 'facilitating teaching of intimate care' model was developed. A description of the model entailed a visual portrayal, and guidelines for operationalisation and evaluation of the model were also developed.

Conclusions. It is envisaged that the developed model will empower nursing students to implement intimate care competently, comfortably and confidently. This will enable them to establish nurse-patient relationships based on trust, respect and dignity.

5. A technical assistance approach to adolescent- and youth-friendly services in primary healthcare clinics

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Background. South Africa faces a growing burden of adolescents (10 - 19 years old) living with or at risk of HIV, sexually transmitted infections and unintended pregnancies. All adolescents require access to effective prevention, treatment and care in environments that are sensitive and responsive to their specific needs.

Objectives. We describe the support given to adolescent- and youth-friendly services (AYFSs) in primary healthcare (PHC) clinics in two health sub-districts, to improve the standard of care provided to adolescents.

Methods. The implementation of AYFSs was conducted via the Wits Reproductive Health and HIV Institute's USAID-funded Adolescent Innovations Project (AIP) in 31 PHC facilities across Sub-District F, Johannesburg Health District and Matlosana Sub-District of Dr Kenneth Kaunda District, North West Province. The AIP technical assistance approach, based on existing activities implemented by the Department of Health (DoH), included, in every facility: (i) baseline and follow-up assessments of the 10 AYFS standards; (ii) identification of individual AYFS facility champions; (iii) facility staff capacity building through training and mentoring; (iv) promotion of AYFSs within facilities and surrounding communities; and (v) implementation of phased quality improvement plans to address gaps.

Results. Between June 2015 and February 2017, 30 AYFS implementing facilities had one baseline and two follow-up assessments. AYFS champions were identified in all 30 facilities; 17

facilities undertook community events promoting their services; and quality improvement plans were implemented in 27 facilities. Formal AYFS training was provided to 17 DoH staff, with over 628 hours of facility-based in-service training and mentoring provided. AYFS scores improved from an average of 43% in June 2015 and 50% in February 2016, to 64% in February 2017.

Conclusions. AYFSs are the foundation for improving access, uptake and retention in care, and service quality for adolescents, and should be a priority at all facilities. Implementation requires facility buy-in and investment in materials and staff. An assessment tool and implementation guides are available for mentoring and supporting staff at all facilities.

6. Methylphenidate use as monitored by a pharmacist in paediatric patients diagnosed with attention-deficit hyperactivity disorder

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Background. Attention-deficit hyperactivity disorder (ADHD) is one of the most commonly diagnosed neurobehavioural developmental disorders in paediatrics. Treatment is complex, requiring continuous evaluation and adjustment.

Objective. To determine if the implementation of a pharmacist monitoring service for the use of methylphenidate for the treatment of ADHD in paediatric patients at Tembisa Provincial Tertiary Hospital (TPTH) is beneficial, in terms of improving the efficacy of therapy and the identification and management of adverse effects.

Methods. This was a prospective, randomised, cross-sectional study, with a control and experimental group design. The target population included all paediatric patients (<18 years old) treated for ADHD with methylphenidate at TPTH (the experimental group) and at Tambo Memorial Hospital (the control group). Twenty-five participants from each group were interviewed, using a structured questionnaire, at monthly intervals, for a period of 3 months per patient.

Results. It was found that there was a 16%, 27% and 27% positive improvement in symptoms noted in the experimental group with regard to inattention, hyperactivity and impulsivity, respectively, compared with the control group, which revealed only a 0%, 1% and 1% improvement, respectively. In terms of adverse effects, the experimental group showed a 17% and 7% reduction in common and rare adverse effects, respectively, compared with the control group, which showed a 3% and 1% reduction, respectively. There was no significant reduction in serious and other adverse effects in either group.

Conclusion. The study showed an overall improvement in symptoms and a significant reduction in adverse effects in the experimental group compared with the control group. This study affirms the hypothesis that the implementation of a pharmacist monitoring service would be beneficial, and it is therefore recommended that ADHD monitoring clinics be instituted in all hospitals providing treatment to these patients.

7. Improving capacity to trace and test children of HIV index patients in Sedibeng District, South Africa

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Background. An estimated 320 000 children <15 years old are living with HIV in South Africa, yet only 55% (45 - 70%) of these are on antiretroviral therapy (ART). Despite low perinatal HIV incidence, there are infected older children who remain untested, and present only when symptomatic.

Methods. BroadReach supports 32 health facilities in Sedibeng District in Gauteng Province, with USAID support. To improve case identification of partners and children of HIV index cases (newly diagnosed or in care), BroadReach and the AIDS Healthcare Foundation led a training programme of 35 nurses and lay counsellors in tracing and testing the contact partners and children of index patients, in March 2017. Following the training, we evaluated the number of children of index cases who were identified, the HIV positivity of those children and the proportion who initiated ART, from April to August 2017.

Results. Nurses and counsellors in 10 facilities tested over 194 children of index cases, of whom 64 were HIV-infected (33% positivity). Overall, 11 children were tested as a family, with one or both parents (12%). Over 95% of children diagnosed initiated ART within 2 weeks of diagnosis ($n=61$). We have now expanded this training and mentorship programme to other district teams, to assist them in integrating partner and children contact tracing and testing in their work. In addition, we will work with the Department of Health to develop guidelines and standards for contact tracing and testing. The training and service delivery was cost-effective, at a total cost of ZAR1 091 per HIV-infected child tested, and ZAR1 148 per child whose ART was initiated.

Conclusion. Patients often bring their partners or children with them for clinical consultations or drug pick-up, yet providers often forget to ask about testing older children (>2 years). Following counselling, most HIV-infected mothers brought their children to the clinic. We did not conduct child contact tracing over the phone or through home visits.

8. Prevalence of and factors associated with admission for malnutrition among under-5 children in Sedibeng District, South Africa: A multicentred cross-sectional study

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Background. Although the fatality rate of children admitted for malnutrition in Sedibeng District, Gauteng, South Africa is high, there are no local studies that provide an understanding of the factors driving these admissions.

Objective. To determine the prevalence of and factors associated with admission for malnutrition among children aged 1 - 59 months in hospitals in Sedibeng District.

Methods. The cross-sectional study used a researcher-administered questionnaire to collect information on the sociodemographics, diet, anthropometry and clinical conditions of under-5 children admitted at Sebokeng, Kopanong and Heidelberg hospitals. The main outcome measures of analysis were prevalence and the factors significantly associated with admission for malnutrition.

Results. Of 306 participants, 9.47% ($n=29$) had acute malnutrition. Of the acute malnutrition cases, most (82.8%, $n=24$) were severe. Compared with breastfed children, those never breastfed were significantly more likely to be admitted for malnutrition (OR=4.5; 95% CI 1.447 - 13.999; $p=0.01$). Compared with those with diarrhoea, children who had pneumonia or any other concurrent illness were significantly less likely to have malnutrition ($p<0.001$). Family income >ZAR2 000 per month, and the mother being employed, were negatively correlated with malnutrition admission (OR=0.13; 95% CI 0.028 - 0.68; $p<0.01$; and OR=0.11; 95% CI 0.01 - 0.96; $p<0.05$, respectively).

Conclusion. The high proportion of admissions for severe acute malnutrition highlights missed opportunities for early anthropometric screening during clinic visits. This study also reiterates the importance of breast feeding and socioeconomic prosperity, especially among women, in the fight against malnutrition.

9. A study on the stability and burden of five chronic diseases at Dr Yusuf Dadoo Hospital, South Africa

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Background. Dr Yusuf Dadoo Hospital is a district hospital situated in Krugersdorp in the West Rand District of Gauteng, South Africa (SA). The hospital sees a large number of patients with chronic diseases, namely HIV, hypertension, asthma, diabetes and epilepsy.

Objective. To determine the chronic burden of these five conditions within our primary level hospital.

Methods. A quantitative point prevalence study looking at the period March - May 2017 was conducted on our chronic scripts. Data were collected and tabulated from 15 357 scripts over the period. The data and points of interest were analysed using Microsoft Excel 2010.

Results. A total of 79% of the scripts were chronic, and the most common chronic condition was hypertension (57%), followed by HIV (19%) and diabetes (15%). In patients with HIV who had other chronic conditions, this was most commonly diabetes (60%). Our chronic stability was found to be 95%, with our burden being 55%. Within our pharmacy we were able to ensure that the correct quantities of items were procured, which eliminated shortages. As the stability of our patients is high, we encouraged our doctors to down-refer patients to clinics within the area, which allowed them to focus on more critical cases. Using this information we were able to make targeted revision sessions for the pharmacy personnel, and create information leaflets with non-pharmacological advice to give them. The leaflets were well received by both patients and doctors. The advice was highlighted as it is important to tackle chronic conditions before complications occur, as treating complications

is far more expensive than providing funds for prevention or early identification, and offering proper basic care to the SA population.

10. A retrospective review of the classification and management of adult diabetic patients at Dr George Mukhari Academic Hospital, Gauteng Province, South Africa

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Background. Diabetes is a major health problem in South Africa (SA) and throughout the world. Strict glycaemic control and proper management of comorbid conditions leads to a reduction in the development of diabetes complications.

Objective. To determine and categorise the different subtypes of adult diabetic patients and assess their treatment according to guidelines.

Methods. The research study was a descriptive, retrospective cross-sectional study. A total of 100 diabetic patients' records were reviewed and compared with guidelines. Data were collected over a period of 8 months.

Results. Diabetes subtypes found ($N=100$) were type 1 (12%) and type 2 (88%). Only 17% of the patients were not managed according to guidelines. Metabolic control was suboptimal, with a mean random blood glucose of 15.00 (standard deviation (SD) 4.05) mmol/L. Glycosylated haemoglobin (HbA1c) was assessed in 65 patients, 84.6% of whom had high HbA1c values with a mean of 9.89% (SD 2.79). A target blood pressure $<140/90$ mmHg was achieved in 30% of the hypertensive patients. The mean systolic blood pressure was 143.94 (SD 22.81) mmHg, and only 14 (26.9%) patients had an LDL-cholesterol <1.8 mmol/L. A majority of the patients (50.1%) were obese, with a mean BMI >30 kg/m². Eye examinations were carried out in only 12% of the patients. There was poor assessment or records of foot examinations. Urine ACR, eGFR, serum creatinine and potassium were not done according to guidelines.

Conclusion. The study demonstrated unsatisfactory compliance with the guidelines in processes of patient care. There was a high number of undocumented examinations. Glycaemic, metabolic and blood pressure control was suboptimal. Poor glycaemic control was associated with poor patient outcomes and an increased risk of complications. These findings emphasise the importance of reviewing how guidelines are implemented in SA public sector hospitals, if evidence-based guidelines are to have any impact on patient care.

11. A retrospective report on additional reprints of extra-oral radiographs at the Wits Oral Health Centre

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Background. The Wits Oral Health Centre (WOHC) at the University of the Witwatersrand, Johannesburg, South Africa has three digital extra-oral X-ray machines. Patients are examined by clinicians, then referred to radiology for X-rays. Thereafter the image is printed,

using a laser printer, placed in their file and sent back to the referring dentist. An average of 60 - 70 X-rays are taken daily. One advantage is that the system allows duplication without having to expose the patient to more radiation. The disadvantage is the effect it has on the department and patient treatment.

Objective. To review the number of extra-oral radiograph reprints at the WOHC between January 2012 and December 2016.

Methods. Data were collected from records kept of each reprint made, tabulating the number, as well as the reason for duplication. At the end of each month, the reprints were categorised into one of five types, and a total for the month was calculated. At the end of each year, each category was totalled, as well as a final tally of the number of reprints for that year.

Results. A total of 1 241 reprints were analysed, of which the highest number ($n=418$; 33.7%) was made in 2016. The lowest number ($n=80$; 6.4%) was made in 2014. Of the five categories, there were two main reasons overall for making reprints: misplaced files ($n=690$; 55.6%) and misplaced X-rays ($n=385$; 31.02%).

Conclusion. The main reasons for making reprints were misplaced files and misplaced X-rays. This has an adverse effect on patient flow and treatment, as making duplicates can be time-consuming. Furthermore, there are budget implications linked to making reprints.

12. Perceived quality of life of diabetic patients attending the outpatient department at Dr Yusuf Dadoo Hospital, Rustenburg, South Africa

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Background. South Africa (SA) has the highest prevalence of diabetes in sub-Saharan Africa, which is expected to rise from the 2010 figure of 4.5% to 4.9% by 2030. The purpose of treatment is not solely symptom remission, but a comprehensive approach to enhance overall quality of life, despite the limitations connected with the disease.

Objective. To assess the quality of life (QOL) in diabetic patients attending the outpatient department at Dr Yusuf Dadoo Hospital in Rustenburg, South Africa.

Methods. A cross-sectional study was undertaken on 270 diabetic patients from November 2016 to January 2017 in a district hospital in South Africa (SA). A researcher-administered Short Form 36 version 2.0 (SF-36v2) QOL questionnaire was used to collect data on sociodemography, clinical characteristics and QOL. Analysis used the χ^2 test and logistic regression.

Results. The mean patients age was 55.1 (standard deviation (SD) 8.6). The majority of the participants were black (68%), South African (92%), married (53%) and female (60%), had a primary school education (50%), were employed (52%), and had a monthly income of $<ZAR5 000$ (55%). The majority (74%) of the participants had been diagnosed with diabetes ≥ 5 years ago. The mean scores for QOL using the SF-36v2 tool were 50.44 and 51.38 for the physical component summary and mental health component summary, respectively, but a majority of participants reported low QOL in

both component summaries. Regression analysis showed that being married ($p=0.05$), having education ($p=0.05$) and not having comorbid diseases ($p=0.01$) were protective factors associated with the physical component of QOL.

Conclusion. Healthcare workers should consider symptom stressors, functional status, emotional wellbeing/mental health and any multiple chronic diseases of the patients during assessment. Allied health workers play a major role in the QOL of diabetic patients.

13. Factors associated with postnatal depression at Levai Mbatha Community Healthcare Centre, Gauteng Province, South Africa

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Background. Depression is a significant cause of disability globally, and approximately one in five women will experience an episode of depression during pregnancy and/or the postnatal period. Despite it being a common postnatal psychiatric condition with a high impact on the family in general, and the mother and child in particular, postnatal depression (PND) has received very little attention in developing countries.

Objective. To determine the point prevalence and factors associated with postnatal depression among recent mothers attending Levai Mbatha Community Health Centre, Evaton, Gauteng Province, South Africa.

Methods. This was a cross-sectional study that assessed PND in 227 mothers attending postnatal care, using a researcher-administered Edinburgh Post-Natal Depression Scale tool. Sociodemographic and medical information was also obtained. Analysis was done using Stata 10 software, using the χ^2 test and logistic regression.

Results. The participants' mean age was 26 years. Most were single (55.5%), had not completed secondary education (52.4%) and did not have any previous mental illness (98.2%). The point prevalence of PND was 38.3%. A mother who had another child or children with a man other than the father of her current child was significantly more likely to have PND (odds ratio 1.97; 95% confidence interval 1.02 - 3.85; $p=0.045$). Mothers who had ever thought of harming themselves or the baby were 29 times more likely to have PND ($p<0.001$).

Conclusion. This study confirms that depression is highly prevalent in the postnatal period, and may be related to the mother having an unstable intimate relationship. The absence of the thought of self-harm may not exclude the diagnosis of PND.

14. Appraisal of pain management during labour at three midwife obstetric units

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Background. Labour is often a time of great fear, anxiety and pain, and yet minimal pain relief or companionship are offered to patients labouring in midwife obstetric units (MOUs).

Objectives. To establish the actual number of mothers labouring in MOUs without receiving any form of pain relief; identify the reasons why midwives are reluctant to offer analgesia in MOU settings; assess the attitude and knowledge of midwives towards management of pain; and, lastly, to establish why support and companionship are not promoted or encouraged for patients who labour in our MOUs.

Methods. This was a descriptive analytical study. The study setting was the three MOUs in the West Rand District, Gauteng, South Africa, from 2014 to 2017. The study used the labour register, and a scheduled drug register audit was carried out. The study population was the midwives working in the MOUs.

Results. Very few clients were offered analgesia during labour. Companionship and labour support is not encouraged or promoted. Midwives are aware of the national maternal care guidelines and national standard operating procedure on pain management covering and guiding their practice. Most midwives working in the MOUs are still not confident or comfortable offering analgesia to clients in labour, owing to the potential effect on the baby.

Conclusion. Our challenge is translating the national maternal guidelines into action and implementation. Clients journey through the labour process alone, with the cycle of fear and anxiety aggravating pain, which in turn is not well managed – and therefore has a negative impact on the mother's labour and birth experience.

15. Dental procedures in patients with inherited bleeding disorders

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Background. Minor invasive procedures can precipitate a prolonged bleeding episode in patients with inherited bleeding disorders (IBDs). Protocols have been established to minimise postoperative bleeding.

Objective. To review dental procedures performed over a 16-year period on patients with IBDs at the Charlotte Maxeke Johannesburg Academic Hospital (CMJAH), and to compare the treatment approaches with published international guidelines.

Methods. The study population comprised patients' files obtained from the Haemophilia Comprehensive Care Centre and Wits Oral Health Centre (WOHC) database. The patient data evaluation was retrospective. The IBDs were haemophilia A and B, von Willebrand disease and other coagulation bleeding diatheses. Patients of all age groups with the abovementioned IBDs who had undergone dental procedures at the CMJAH from January 2000 to December 2015 were included in the study. Dental records were retrieved from the WOHC database, and the demographic data, bleeding condition and severity, dental procedure information and replacement therapy and postoperative bleeding complication data were extracted from the files.

Results. Dental extractions accounted for 58% of dental procedures performed. Local haemostatic agents were used in 42% of the study

population. Postoperative bleeding was observed in three subjects, and the management of these correlated with the published guidelines.

Conclusion. The recommended improvements include greater use of preventive dental procedures, and of local haemostatic agents in invasive procedures. A standard protocol needs to be discussed to ensure uniformity in the management of IBD patients, and compliance with the published protocols.

16. Youth care clubs: A resource-smart model to improve management of adolescent and youth HIV treatment and care

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Background. Physical and emotional changes during adolescence make young people vulnerable to HIV infection, and challenge antiretroviral treatment initiation and adherence. Adherence clubs improve retention and adherence, and reduce waiting times and provider workload. Youth care clubs (YCCs) offer a primary healthcare (PHC)-based adolescent- and youth-friendly group management model for HIV-positive young people (12 - 24 years old).

Objective. To describe a resource-smart model to improve the management of adolescent and youth HIV treatment and care.

Methods. Wits Reproductive Health and HIV Institute's United States Agency for International Development (USAID)-funded Adolescent Innovations Project (AIP) has implemented YCCs since 2016 in PHC structures in two health districts: Sub-District F, Johannesburg Health District, Gauteng Province, South Africa; and Matlosana, Dr Kenneth Kaunda District, North West Province, South Africa. Closed mixed groups of up to 20 newly-diagnosed, virally suppressed and not virally suppressed HIV-positive adolescents and youth meet monthly for 1 hour, where they are screened for TB, STIs, contraception, nutrition and psychosocial needs. They receive prepacked medication, and participate in an interactive youth-relevant discussion that includes core elements of the I ACT programme. Co-ordinated viral-load testing is conducted annually. YCCs are facilitated by a lay counsellor and supported by a clinician. Members' clinical information and attendance are captured in a YCC register, and on TIER.net. Information was analysed using Excel and Stata version 13.

Results. A total of 512 patients were enrolled in 28 YCCs at 17 PHC structures. The median age of the YCC members was 19 years; 68% were female and 90% were virally suppressed at last recorded viral load. To date, 87.7% of members ever enrolled remain in YCC care; 4.3% returned to routine care; 2% transferred out; and 4% were lost to follow-up. YCC members attended 79% of scheduled club visits.

Conclusion. YCCs are implemented within existing PHC structures, and provide integrated care for adolescents and youth, in addition to supporting the transition from paediatric to adult care. Attendance and retention in care rates suggest YCCs are an acceptable and effective model of adolescent-friendly HIV care,

with the potential to support the achievement of the third of the 90-90-90 targets among this population.

18. Access to and utilisation of healthcare services by sex workers at truck-stop clinics in South Africa: A case study

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Background. Sex worker (SW)-specific health services aim to respond to challenges that this key population faces in accessing healthcare. Services aim to integrate primary healthcare (PHC) interventions, yet most focus on HIV and sexually transmitted infection (STI) prevention. North Star Alliance (NSA) provides healthcare in roadside wellness clinics (RWCs) to at-risk populations along transport corridors in sub-Saharan Africa.

Objectives. To inform future service development for SWs, and describe NSA's contribution to healthcare provision to this population in South Africa, the services provided to and utilised by SWs, and SWs' views of these services.

Methods. The study used a mixed-methods approach: (i) quantitative analyses of anonymised NSA routine data for a 2-year period, covering nine sites in seven provinces, with clinic visits disaggregated by type of service accessed; and (ii) thematic analysis of semi-structured interviews ($n=25$) conducted at five clinics.

Results. 2 794 SWs accessed RWCs. The SWs attending clinics were almost exclusively female (98%) and <40 years old (84%). The majority were South African (84%), apart from at Musina, where they were mostly Zimbabwean. On average, SWs visited clinics 1.5 times per person, with one service accessed during each visit. PHC services not related to HIV or STIs were more commonly accessed than HIV-specific services and STI treatment. The number of services provided almost doubled during the study period, from 1 489 in year one, to 2 936 in year two. Not all participants self-identified as SWs, yet all reported feeling at higher risk of poor health than the general population owing to their involvement in sex work. Participants reported satisfaction with site accessibility, location and operating hours. SWs described services as suitable and appropriate, with friendly staff.

Conclusions. RWCs are highly appreciated by their users, as they are suitable and accessible. Those SWs who use a clinic only visit it irregularly, mostly for PHC services. Services other than that for which the SW came to the clinic appear to be offered only rarely. We recommend areas for service expansion.

19. Healthcare for truck drivers: Assessing accessibility and appropriateness of South African roadside wellness centres

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Background. Truck drivers occupy a pivotal role in the economies of southern Africa, due to limited rail, water and other forms of transport for goods. The occupational nature of truck driving limits their access to healthcare. North Star Alliance offers a tailored primary healthcare service for truck drivers along the sub-Saharan trucking corridors.

Objectives. To explore truck drivers' views regarding access to, and appropriateness of, selected South African North Star roadside wellness centres (RWCs), and to understand their health-seeking behaviour.

Methods. We conducted semi-structured interviews with two groups of purposively sampled truck drivers: 24 who had accessed North Star RWCs, and 22 who knew about the centres but did not use them. The interviews explored ease of access, health-seeking behaviour and healthcare experiences. Additional information on risk perceptions emerged. Qualitative data were organised into four themes: client satisfaction, health-seeking behaviour, risk perception and behaviour, and service delivery strengthening.

Results. The majority of those interviewed were 36 - 65 years old, South African, had secondary education, were employed full-time, in stable relationships and had children. Overall, users were satisfied with RWC locations, operating hours, infrastructure and healthcare worker attitudes. Half of the non-users did not access routine healthcare anywhere. The other non-users primarily did not access the RWCs because they did not know the operating times and preferred local facilities. Both groups used traditional healers and pharmacies. RWC users accessed traditional healers and pharmacies for services not available to them at the RWCs. Both groups reported not using private general practitioners or specialists. Both groups provided recommendations for strengthening the service delivery model, including an increased focus on non-communicable diseases and occupationally required health services such as vaccinations.

Conclusion. Comprehensive care packages delivered through accessible satellite facilities should form the foundation of service delivery models for truck drivers and other mobile populations.

20. The addition of antiretroviral therapy to a primary healthcare delivery model in South Africa for truck drivers and sex workers

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Background. Truck drivers (TDs) and sex workers (SWs) have specific healthcare needs, health vulnerabilities and healthcare access challenges. Globally, they bear a disproportionate health burden, including high transmission and acquisition rates of sexually transmitted infections (STIs) and HIV. North Star Alliance (NSA) provides healthcare to mobile populations and communities along transport corridors, through a network of roadside wellness clinics (RWCs).

Objective. To evaluate the antiretroviral therapy (ART) services at the South African (SA) RWCs.

Methods. A nurse-initiated management of ART (NIMART) service addition to the RWC service, offered up to 31 May 2016, was evaluated. A cohort of newly tested HIV-positive clients consented to follow-up to assess the contribution of NSA's services to linkage to care of HIV-positive clients in SA. Financial costs (excluding those for drugs and diagnostics, as these were incurred by the Department of Health) were calculated.

Results. The average time for clinic accreditation was 16 months, with clinics having been active for an average of 7 months at the time of data collection. A total of 285 ART initiations (an average of 30 initiations per month), mainly in the community group, were done, the majority at the Hoedspruit RWC. We observed heterogeneity in HIV prevalence – SWs had higher HIV positivity than other categories. Among HIV-positive clients ($N=742$), 61% (453) had CD4 count testing, with 70% (317) considered eligible for treatment, and 57% (82) of 145 consenting participants were followed up. Of these, 65% (53) had initiated ART and were retained in care at 6 months. The unit cost per patient initiated and in care was estimated to be approximately ZAR878. The total start-up cost was estimated to be ZAR242 959, the majority (97%) of which was for NIMART curriculum development, adaptation and training.

Conclusion. RWCs present a platform to expand access to testing successfully, provide a point of linkage to ART care and help to monitor (uncomplicated) clients along transport corridors.

21. Communicable disease surveillance by environmental health practitioners in the City of Ekurhuleni

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Background. Communicable diseases are a long-standing global concern. This study describes environmental health practices relating to communicable disease surveillance (CDS) in the City of Ekurhuleni. This research was driven by the need for environmental health practitioners (EHPs) to comply with the regulations defining the scope of practice for environmental health. Section 5 outlines the role of EHPs in communicable disease surveillance. However, it is uncertain to what degree EHPs investigate the existence of communicable diseases, or what actual practices these EHPs follow in the City of Ekurhuleni.

Objective. To assess the knowledge and evaluate the practices of EHPs, determine their perceptions around CDS and finally, recommend standard operating procedures (SOPs) for communicable disease surveillance.

Methods. This was a descriptive study that used quantitative methods. A total population of 95 EHPs was surveyed, consisting of operational-level EHPs, seniors and Environmental Health Managers. Data were collected through a structured self-administered questionnaire.

Results. The results show that there are no SOPs. EHPs' perceptions of CDS contribute to their performance of this function. Furthermore, the study participants reported a wide range of opinions regarding the improvement of CDS, training, reporting systems and specialising in CDS. A significant number reported dissatisfaction with the way the function is performed in the City of Ekurhuleni.

Conclusion. This study has demonstrated that the provisions of the regulations are not optimally adhered to. Therefore, the study results may facilitate the creation of a comprehensive approach to addressing CDS for EHPs. This approach should guide policy formulation by the national government, and aid CDS through training and the establishment of SOPs.

22. Evaluation of an ABC/VEN matrix for the routine monitoring of pharmaceutical expenditure and inventory management at West Rand Regional Pharmacy

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Background. The definition of rational drug use specifically addresses the clinical needs of patients, as well as the cost of meeting these needs.

Objectives. To aid rational drug use by analysing the budget and expenditure of West Rand Regional Pharmacy, and identify drugs that were possibly used irrationally.

Methods. The institution's demand information was acquired retrospectively from Medical Supplies Depot for April 2016 - November 2016, and was utilised to compile and analyse an ABC/VEN matrix using three specific analysis tools.

Results. It was found that 97% of the budget expenditure was on Essential Medicines List items, and an acceptable 80% of the institutional budget was spent on vital items. A review of the budget allocation per contract found that 15.74% of the budget was spent on 52 Essential Drugs List (EDL) items ordered that were not on contract and had to be bought at high costs. A drug utilisation evaluation (DUE) of the cost driver beclomethasone inhalers, determined that the number of inhalers required and dispensed to patients was not accurately calculated. A trend was identified in which the number of inhalers dispensed correlated with the number of months treatment was dispensed for. This was evident in all 3 cohorts of the study.

Conclusion. An analysis of an ABC/VEN matrix is useful in determining the areas of expenditure of an institution. Ideally, all EDL items should be on tender, or they consume a large part of the facilities budget. Beclomethasone 200 mcg inhalers for the treatment of adult patients are more cost-efficient, in line with the current standard treatment guidelines. Pharmaceutical and Therapeutics Committees and pharmacists have a monitoring and evaluation role to play in ensuring that patients' clinical needs are met in a cost-effective manner.

23. Antimicrobial stewardship activities in public healthcare facilities in Gauteng Province, South Africa

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Background. Antimicrobial resistance is a major public health, clinical and economic issue facing our generation. A call has been made to set up antimicrobial stewardship (AMS) teams at an institutional level, to further this initiative.

Objective. To determine the irrational use of antibiotics within the Charlotte Maxeke Johannesburg Academic Hospital (CMJAH) and the extent of AMS activities within the hospital, and facilitate the establishment of an AMS committee.

Methods. The study was a qualitative study, comprising two parts. The first involved a standard questionnaire to determine the level of activity around AMS issues within CMJAH. The questionnaire focused on current AMS practices at the institution, and various statistical data were drawn from the results. The second part involved an analysis of ABC/VEN data per anatomical therapeutic classification class per institution, to determine possible irrational prescribing. The study focused on intravenous antimicrobials prescribed for inpatients admitted to CMJAH. An audit was also conducted on motivational forms for restricted antimicrobial medications.

Results. A total of 316 motivations were audited. Of these, 78 forms (25%) had incomplete patient information, and 5 (1.5%) omitted the name of the antimicrobial being motivated. There were 52 forms (16.5%) submitted for antimicrobials that did not require any motivation, e.g. Augmentin. Eight forms (2.5%) were either incorrect or outdated versions of the antimicrobial forms. Findings from the ABC/VEN analysis also reflected antimicrobials that have been classified as non-essential, which consumed about 80% of budget.

Conclusion. The AMS committee was formalised. As a result of the various shortcomings noted in the audit, a more user-friendly

antimicrobial chart was developed by the committee. The chart also acts as a motivation for restricted antimicrobial. AMS aims to prevent the overuse and misuse of antibiotics, to minimise the development of resistance.

24. An evaluation of healthcare waste practices in Vosloorus clinics, Gauteng Province, South Africa

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Background. There have been recent media reports of healthcare-risk waste found illegally dumped. Healthcare-risk waste was found illegally buried at a house in Dawn Park. A study conducted at Ekurhuleni metropolitan municipality clinics revealed that clinics could not account for healthcare-risk waste generated.

Objectives. To evaluate healthcare-risk waste management practices in Vosloorus clinics; determine types and amount of waste generated; describe healthcare-waste handling; and evaluate knowledge of applicable legislation.

Methods. Study design: a cross-sectional descriptive study; study setting and period: Ekurhuleni Health Department, February - June 2016; study site: Vosloorus clinics; sampling: three clinics selected (convenient sampling); data collection: interviews and observation checklist.

Results. Sharps and infectious waste are generated at the facilities, and the healthcare general waste is not quantified. Some clinics had no purpose-built healthcare-risk waste storage area, and there was inappropriate use or overuse of sharp containers, inappropriate waste segregation, a shortage of sharps containers, inadequate training on healthcare-risk waste and a lack of protective clothing. There is a lack of knowledge about healthcare waste legislation among clinic staff.

Conclusion. The types and amount of waste generated were normal for the facilities reviewed. There was inappropriate storage and handling of healthcare waste and poor awareness of relevant by-laws, policies and regulations. Therefore, it is recommended that facilities develop waste management plans. It is necessary to strengthen the monitoring, supervision and support of facilities by environmental health practitioners and facility managers; train staff on appropriate healthcare waste practices; train clinics regarding policies, standards and legislation; and increase community awareness.

25. Standardisation in Gauteng clinical engineering departments

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Background. Healthcare technology (medical equipment) plays a vital role in the diagnosis, prevention and treatment of diseases and health problems. Clinical engineering departments are the undisputed managers of the health technology that is used in health institutions. It is critical that these departments are effective and efficient in delivering their services to health institutions. In healthcare, standards play a very important role as an effective method of reducing health institution costs. Standardisation is

also claimed to promote safe and cost-effective quality patient care. However, the clinical engineering departments in Gauteng health institutions seem to operate in isolation, without common standards that facilitate the delivery of the best service to patients. Some hospitals seem to be struggling to establish well-functioning clinical engineering departments.

Objective. To establish and implement standardisation in Gauteng clinical engineering departments.

Methods. This study was conducted using mixed methods, combining qualitative and quantitative. The samples were from the provincial, regional and district hospitals. The study involved clinicians, supply chain management staff, finance staff, hospital management staff and clinical engineering staff. Data were collected by means of survey questions, interviews and direct or field observations at clinical engineering departments.

Results. The study showed that many challenges are faced by clinical engineering departments, and offers some guidance on how they can be standardised.

Conclusion. The research determined an implementation programme and strategy that could be adopted and further developed for standardisation of clinical engineering departments, which could involve the designing of infrastructure, tools and human resources.

26. Exploring organisational factors that influence health facility managers' data utilisation in a metropolitan health district

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Background. Data use for decision-making is an important indicator of health management information system (HIS) performance. The objective of South Africa's District Health Management Information System (DHMIS) is to strengthen monitoring, evaluation and information use in policy and programme planning, to strengthen the health system and improve community health outcomes. Evidence currently demonstrates widespread suboptimal use of DHMIS data, especially by primary healthcare managers.

Objective. To explore the perceived organisational factors influencing data use by healthcare facility managers for service improvement in a metropolitan health district in 2017 using the PRISM theoretical framework.

Methods. Ten semi-structured interviews were conducted, using an interview guide pretested in another metropolitan health district. Participants were randomly selected local and provincial health facility managers per subdistrict. Data saturation was reached at nine interviews. Eight English interviews were transcribed verbatim and managed using MAXQDA software, supported by field notes captured into a master Excel spreadsheet. The data were analysed using a directed approach to thematic content analysis, guided by the PRISM conceptual framework for organisational determinants of HIS performance.

Results. Organisational factors supporting data utilisation by facility managers are demonstrated in the perceived policy commitment and implementation strategy of the DHMIS policy as it relates to improvements in district quality assurance measures. HIS human resources, continued HIS training, regular supervision and feedback of HIS performance at facility level are the organisational mechanisms commonly identified as gaps, according to facility managers' perceptions.

Conclusion. The district's culture of information use and its decision-making context significantly influence facility managers' perception of its organisational critical management, training and supervision management functions. The organisational gaps in HIS human resource allocation, structured training, supervision and feedback mechanisms seemingly undermine the organisation's expressed determination to support consistent data-informed decision-making at facility level for service improvements and for health systems strengthening.

27. Developing a balanced score card for the monitoring and evaluation of the implementation of quality assurance in the primary healthcare setting of Gauteng Province, South Africa

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Background. Although structural and legislative reforms for the purpose of enabling the delivery of quality healthcare have been embarked upon, multiple obstacles continue to hinder the full implementation of quality healthcare today. A regular assessment of the effectiveness of implementation is required.

Objective. To evaluate the implementation of a quality assurance framework in primary health care (PHC) settings in Gauteng Province, South Africa, with the purpose of developing a balanced score card (BSC) for the monitoring the implementation of quality assurance.

Methods. The study consisted of two case studies conducted in two Gauteng districts. Both quantitative and qualitative case study methods were used. The facilities used in sampling consisted of community health clinics, district hospitals and PHC clinics. In district 1, questionnaires were sent to 37 facility managers (23 responses) and 72 healthcare providers (45 responses). In district 2, questionnaires were sent to 67 facility managers (33 responses) and 100 healthcare providers (61 responses). Interviews were conducted with facility managers, quality-assurance co-ordinators and district quality-assurance co-ordinators from both districts. Focus groups were used to uncover patients' perceptions of quality of care.

Results. Quality assurance implementation remains fragmented. However, the developed BSC enables an innovative, integrated approach to quality assurance monitoring and evaluation, owing to its emphasis on aspects such as training mechanisms, quality-assurance performance, resourcing, governance, staff, patient safety and the community. The BSC brings together information, knowledge and expertise within quality assurance in Gauteng Province to improve all facilities and services.

Conclusion. The study explored obstacles to quality assurance framework implementation, advancement and measurement

in PHC settings. A more practical, holistic and feasible quality-assurance monitoring tool for the implementation of integrative quality assurance, in the form of a BSC, was developed. It will be tested with relevant stakeholders so that it is replicated in other healthcare facilities as part of the National Health Insurance rollout.

28. The behaviour and attitudes of Kempton Park communities in Johannesburg, South Africa with reference to reusing domestic waste

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Background. The reuse of domestic waste is an integral part of the domestic waste minimisation process, as domestic waste which is reused is essentially removed from the waste stream. The regulations governing the reuse of domestic waste as a means of reducing waste that is transferred to a landfill site are entrenched at local and international levels.

Objectives. (i) to determine: whether or not households participate in domestic waste reuse activities, and the type of activities involved; where the households receive information on domestic waste reuse; the households' behaviour and attitudes towards the reuse of domestic waste; and (ii) to make recommendations based on the findings of the study regarding domestic waste reuse.

Methods. This study adopted a quantitative approach to describe suburban communities' attitudes towards and behaviour around domestic waste reuse. The investigation was non-experimental, cross-sectional and descriptive. Three community areas were visited, and structured questions were used through a simple random sampling method. The data were analysed and interpreted using SPSS.

Results. The study showed that 93% of residents in the three identified areas reused domestic waste, according to 10 activities aligned to domestic waste reuse. They indicated that they received much of their domestic reuse information from the media and internet. Respondents felt that the reusing of domestic waste was a positive activity that would help future generations.

Conclusion. The outcome indicated that formal programmes were needed to assist residents to reuse waste efficiently, and that government departments and environmental health practitioners in particular should be better sources of information on the reuse of domestic waste.

29. Technology-assisted interventions for complying with aspects of national core standards for rollout of National Health Insurance at Weskoppies Hospital

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Background. National Health Insurance (NHI) is a health-financing system designed to provide access to quality affordable personal health services. National core standards (NCSs) were developed for health facilities to provide quality healthcare and rollout of NHI.

Objective. To prepare Weskoppies Hospital Pharmacy (WHP) for the implementation of NHI by complying with NCSs and using technology to comply with vital aspects of NCSs such as temperature monitoring and control of Schedule 6 medicines.

Methods. A descriptive case study was conducted at WHP by pharmacists. Appropriate technology was identified through literature reviews and the relevant legislation.

A temperature monitoring unit was procured to measure real-time temperatures, using sensors, at all medicine storage areas. Temperatures were displayed conspicuously on a monitor and text messages were sent to the pharmacists to make appropriate interventions. A temperature log report was available for printing and mapping. An intelligent key management solution was utilised for accessing, controlling and safeguarding Schedule 6 (S6) and Specified Schedule 5 (SS5) medicines. This is a digital, electronic and finger-sensor locker that provides access only to pharmacists. The digital locker provides a full access report and reconciliation of controlled medicines.

Results. The use of technology has assisted WHP by dramatically minimising wasteful disposal of thermolabile medicines due to electricity failures, from an estimated ZAR47 500 in 2013 to ZAR0 in the following years. S6 and SS5 records were consistently balanced, reconciled and controlled at all times. WHP consistently complied with vital aspects of the NCSs starting from 2014, largely owing to technology-assisted interventions. WHP received grade A certification from the South African Pharmacy Council in 2015 for maintaining high standards of good pharmacy practice.

Conclusion. Technology-assisted interventions definitely improved pharmaceutical services and prepared WHP to comply with the NCSs. Gauteng Health Department administrators must invest in technology to prepare institutions in complying with NCSs for effective implementation of NHI.

30. Accountability in our healthcare system: Whose responsibility?

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Accountability means different things to different people, and is often poorly defined. People who use our health services want health workers to respect them and to provide services in a caring and professional manner, such that these services make them feel or get better. The Life Esidemeni tragedy has accentuated the issue of accountability, the essence of which is answerability. We all have questions about what was done and why – why did professional codes of ethics or conduct not provide the necessary buffer to prevent the tragedy, and what lessons can we learn about accountability? This plenary session will highlight different forms of accountability, namely financial, performance and political or democratic accountability. The session will also make a distinction between objective accountability (to those in positions of authority), and subjective accountability (to self, or a felt sense of obligation). The plenary will conclude with a discussion of the role and responsibilities of health professionals, health service managers

and policy makers in providing caring, responsive, quality health services within an ethical and accountable framework.

31. Human resources for health research

E Buch

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If you get your workforce right, you get your service right. This presentation explores the contribution that research into human resources can make to improving human resources for health. It provides examples of the research subjects that might be of particular interest to the Gauteng Department of Health as it strives to improve efficiency and quality, and to create a caring ethos. It also explores the different research methodologies that are applicable. Staff are encouraged to undertake research that will enhance the planning, deployment, utilisation, performance, commitment, motivation and retention of staff, both administrative and clinical, working in the community and at clinics or hospitals.

32. MDGs to SDGs: Where are we?

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In September 2015, heads of state and governments met at the United Nations in New York City, USA, to agree on a new generation of 17 Sustainable Development Goals (SDGs), and 169 targets, to succeed the Millennium Development Goals (MDGs) and to guide global development over the 15 years to 2030. The SDGs are product of extensive global consultation and prolonged negotiation. The SDGs have been welcomed by many for their comprehensiveness, universal applicability and breadth of ambition, but criticised by others for lacking precision and for proposing an unattainable utopia. However, a pragmatic middle ground is possible that sees the SDGs helping to accelerate progress in health, universal coverage and human development. Goal 3, on health, has nine substantive targets and four additional points, which are also targets but are listed as 'means of implementation'. Placing universal health coverage (UHC) as the target to which all the others contribute also shows how UHC can act to increase coherence, reduce fragmentation in the health sector and contribute to the development of strong health systems. SDGs offer an opportunity to take a fresh look at institutional arrangements and focus on improving people's health in a holistic, integrated manner. Some of the questions to consider concern what is needed in terms of institutional arrangements to finance and produce global public goods, to improve cross-border health security to address the risk factors for non-communicable diseases, and to improve measurement.

33. Local innovations to address local needs and to show how they can be implemented in South Africa

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With budgets stagnating and patient needs and disease burden increasing, innovation is essential to bridge this gap. The revitalised SAMRC has focused on funding local innovation in the drug,

vaccine, m-Health and medical device space to address some of these challenges. There are a number of examples where lives have been saved and jobs have been created, and of how these innovations can be implemented locally and lessons learned from them.

34. Antimicrobial stewardship: A focus on amoxicillin 500 mg usage in Sedibeng District, South Africa

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Background. The inappropriate use of antibiotics promotes bacterial resistance to antimicrobials, and is recognised as a major health threat by the World Health Organization. While studies elsewhere suggest that the inappropriate use of antibiotics is rife, there are no data on prescription patterns and antimicrobial stewardship to inform clinical decisions and practice in Sedibeng District, South Africa.

Objectives. To identify the most frequently prescribed antibiotic in Sedibeng District, and whether its use is in accordance with standard treatment guidelines and the primary healthcare Essential Drugs List, thus ultimately ensuring rational drug use.

Methods. This was a cross-sectional study, conducted in May 2017. The selection of the facilities was based on registered pharmacies with a fulltime pharmacist based at the pharmacy, and a medical officer/s at the clinic, where there are no antimicrobial stewardship committees in place. Sedibeng District has 40 primary healthcare (PHC) facilities, of which 5 were selected. An ABC analysis was conducted to identify the most frequently used antibiotic. Amoxicillin 500 mg was identified to be the most frequently used over the study period. One of the limitations was that data were only collected over a period of 1 month, and in 5 facilities only. Nurse clinicians were excluded.

Results. It was found that in the facilities in which the data were collected, adherence to guidelines was very low, according to prescribing patterns. Diagnoses were often very vague, though some diagnoses, if further interrogated, could perhaps partially comply with guidelines. Based on these results, a presentation was made at the district Pharmaceutical and Therapeutic Committee and the doctors' continuing medical education sessions to create awareness about the lack of compliance with standard treatment guidelines.

Conclusion. With proper monitoring and evaluation, adherence to guidelines can be improved, resulting in the appropriate prescribing of antibiotics.

35. Improving adverse drug reaction reporting in a secondary hospital in Gauteng Province, South Africa: A pharmacist-driven pharmacovigilance intervention

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Background. Spontaneous reporting of adverse drug reactions (ADRs) by healthcare professionals (HCPs) is limited. Evidence of a functional pharmacovigilance (PV) system is a requirement in South African hospitals.

Objective. To evaluate the impact of a structured pharmacist-driven PV system for ADR reporting at Sebokeng Hospital.

Methods. This was a descriptive, operational intervention study of a structured pharmacist-driven PV system for ADR reporting, including targeted training at different forums, implemented and monitored over 18 months. Knowledge, attitudes and practices of HCPs were assessed pre- and post-intervention ($n=132$ and 151 , respectively) via a self-administered structured questionnaire, along with the numbers of ADRs reported. The results were compared using Fisher's exact test; $p<0.05$ considered statistically significant.

Results. At baseline, 19.6% of HCPs were aware of the existing ADR reporting system, 5.3% had received training on ADR reporting and 89.4% indicated the need for training. Post-intervention, 32.5% of HCPs indicated receiving training during the intervention, 96.6% will support the system and 84.8% understood the need for ADR reporting. Statistically significant improvements in pre- and post-intervention knowledge included: the necessity to report ADRs (46.2% v. 98.0%); had previously reported an ADR (12.1% v. 33.8%); knew an ADR form was available (15.2% v. 68.9%); and knew to whom to submit it (18.9% v. 72.8%). The previous reasons given for non-reporting decreased significantly: not knowing 'how, where and when to report' and 'concern that report may be wrong' (34.1% v. 18.7%). ADR-reporting increased more than 10-fold: from 6 reports (18 months pre-intervention) to 69 reports (during intervention).

Conclusion. A pharmacist-driven PV system contributed to better knowledge of and attitudes to HCPs, and increased ADR reporting for inpatients.

36. Pharmacy automation technology: Improving chronic medicine access and care

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Background. The ratio of pharmacists to population in South Africa (SA) in 2010 compared unfavourably with that in other developing countries. This was further skewed by the distribution of pharmacy staff between the private and public sectors, resulting in inequality in access to medicine and pharmaceutical care. The situation is exacerbated by SA's quadruple burden of disease, and disproportions in the availability of resources and facilities.

Objectives. To evaluate the success of a pilot project introducing the Pharmacy Dispensing Unit (PDU) in the City of Johannesburg.

Methods. The PDU is an ATM-like innovation being piloted to provide an unconventional alternative for dispensing, counselling and collection of medication to chronic stable patients in the City of Johannesburg, Gauteng Province, in support of the National Department of Health's decanting strategy. The pilots in

periurban communities in Gauteng with high population densities have uncovered additional benefits to those derived from the Central Chronic Medicine Dispensing and Distribution (CCMDD) programme.

Results. The first PDU site was established at Alexandra Plaza in May 2017, and had, up to the end of January 2018, dispensed 7 240 collections from the site. PDU sites are easily accessible owing to their location at community shopping centres, and provide the convenience of extended operating hours. A PDU dispenses and labels a 2-month supply of medicine in an average of 3 minutes. The innovation also reinforces counselling and pharmaceutical care of patients through the PDU's cloud-enabled audiovisual link, which allows remote face-to-face interaction and assisted dispensing. It also derives additional benefits regarding the patient, dispensing and inventory data management.

Conclusions. The pilot project has demonstrated increased patient access, convenience, flexibility, operational efficiency and the capacity for rapid expansion of direct, quality pharmaceutical services to a greater number of patients. Investment in, and rollout and maximisation of, such innovations is required to rapidly and sustainably reform the quality and efficiency of medicine dispensing and other areas of healthcare in SA.

37. A study on RTQII training in NMM District, North West Province, South Africa

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Background. Point-of-care testing (POCT) is an important component of evaluating patients in the emergency room/

outpatient department in most health facilities worldwide. Examples of POCTs are the pregnancy test, the haemoglobin test and the rapid HIV test on human blood/serum. South Africa (SA) has the largest antiretroviral (ARV) treatment programme in sub-Saharan Africa and worldwide. Under the 90-90-90 strategic plan, we need to test an estimated additional 2.5 million people living with HIV/AIDS (PLWHAs), according to the HIV prevalence rate.

Objective. SA introduced, on 1 September 2016, the universal test-and-treat model to care for these millions of PLWHAs. Ensuring the quality (accuracy, consistency and reliability) of this HIV POCT takes on a new urgency in SA because of the high burden of the disease in the population.

Methods. This was a cross-sectional direct observational study (using an RTQII check list assessment tool) of the trainees among cohorts of healthcare workers. A total of 90 were trained on RTQII in the Ngaka Modiri Molema District Municipality, North West Province, South Africa, between January and July 2016. Proficiency tests were performed during the training workshop.

Results. Only 30% of these trainees were able to use the pipettes supplied in the test kits with good hand dexterity to deliver the appropriate number of drops. Seventy percent of participants followed the correct timing of tests to interpret the HIV results. However, on the positive side, more than 90% were able to correctly interpret the HIV test results using the nationally approved HIV testing algorithm.

Conclusion. Rigorous training of all HIV testers in proper hand dexterity while using various types of pipettes provided in the HIV test kits is an urgent necessity and should be made mandatory. This specific training will ensure consistent delivery of the correct specimen drops for the testing process in order to attain good quality (in terms of accuracy and reliability) in the final HIV test results obtained.