pains and is an effective method of communicating with parents. With increasing accessibility of mobile phones worldwide this is a viable, cost-effective and reproducible method of optimising analgesia post-discharge from the Paediatric ED.

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Internal medicine outreach in area 2 of KwaZulu-Natal with the Red Cross Air Mercy Service: 2007-mid-2013

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Introduction: This study updates the Outreach Programme for Internal Medicine in Area 2 of KwaZulu-Natal (KZN) over the past six-and-a-half years.

Methods: AMS, via a formal agreement with the KZN Department of Health (DOH) for 16 years, has provided a safe, reliable, independent transport system, by air and by road. The DOH has provided posts in the major disciplines for the co-ordination of Area 2 outreach. The aim is that each district hospital should receive a visit from a specialist in each major discipline on a monthly basis. Internal Medicine is fortunate to have a fulltime coordinator with the retention of the retired coordinator on a sessional basis. A typical visit comprises a teaching session, a ward-round, and an outpatient session. Protocols and referral criteria are discussed, and the medical manager may be consulted regarding needs and problems.

Results: 90% of the 20 district hospitals in Area 2 of KZN have received regular visits. The sessional outreach physician visits seven hospitals per month, and has now made 432 visits, 172 of them by air and 260 by road. The current coordinator and other specialists have achieved a further 167 visits, giving a tally of 599. A total of 3509 medical personnel have been involved, and 5525 patients have been seen. An additional achievement has been regular visits by Neurology, Nephrology, Cardiology and Endocrinology to Madadeni Hospital, furthering the plan of subspecialty outreach to regional hospitals and general specialty outreach to district hospitals.

Conclusion: This Outreach Programme functions on a comprehensive footing, thanks to the AMS and the KZN DOH. Other health areas could be encouraged to follow this example.

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Multi-disciplinary training improves pain management in the paediatric emergency department

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Introduction: Recognition and alleviation of pain should be a priority when treating ill and injured children. We determine whether pain assessment and management in a UK paediatric emergency department follows national standards and improves following multi-disciplinary training.

Methods: We retrospectively analysed notes of 100 randomly-selected cases (1 month–15 years) presenting to a paediatric emergency depart-

ment over one month. We studied initial assessment of pain, time to prescription, appropriateness of analgesia and re-assessment of pain. These outcomes were compared to national standards. Following multi-disciplinary training sessions we re-evaluated these outcomes by analysing a further 100 cases.

Results: Prior to training, 48% cases had pain scores documented and 31% cases had appropriate analgesia prescribed. No cases were assessed as having severe pain. Pain was not re-assessed in any patients. Following training, 74% cases had pain scores documented; 6% cases scored ‘severe pain’; 74% had appropriate analgesia prescribed and 12% cases were re-assessed.

Conclusions: Our study highlights that pain in children is commonly under-recognised, under-treated and treatment delayed. Prior to training, pain scoring was performed less in younger children and time to prescribe analgesia was longer; perhaps due to unfamiliarity with pre-verbal pain assessment methods. Training covered various pain assessment tools, which improved pain scoring at triage for all ages and enabled identification of patients in severe pain. Raising awareness of the paediatric ‘analgesic ladder’ improved prescribing of appropriate analgesia. With the pressures of a busy emergency department good documentation of pain scoring and re-assessment is often neglected. Assessment and management of pain in children improved with multi-disciplinary training. This is a simple and cost-effective strategy, which should be provided in all emergency departments worldwide to ensure quality of care.

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Point-of-care ultrasound use over six-month training period in Rwandan district hospitals


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Introduction: Point-of-care ultrasound (POCUS) is an effective diagnostic technology in resource-limited settings. There is increasing interest in introducing ultrasound training in such environments, but few reports describing long-term follow-up and impact of a POCUS program in a resource-limited setting. We introduced a POCUS program in Rwanda, and sought to determine the number and type of ultrasounds performed, the impact of a remote quality assurance (QA) program, and the effect of POCUS on patient management.

Methods: Seventeen Rwandan physicians underwent a ten-day training course in POCUS in Kigali, Rwanda. Post-course, participants tracked the ultrasounds they performed using a cloud-based storage system, recorded clinical impressions, and received periodic QA with on-site proctoring over a six-month follow-up. Remote QA to evaluate image quality was performed by five emergency ultrasound fellowship-trained clinicians. Images were graded on a scale of 0–4. (0 = no meaningful image, 2 = adequate, 4 = outstanding). Trainees also documented how POCUS changed clinical management.

Results: Over six months, 1158 ultrasounds were performed and logged by fifteen participants at eleven regional hospitals. 590 (50.9%) had matched images and interpretations available for review. Abdominal ultrasound was the most frequently performed application (19.7%), followed by liver (14.6%), obstetrics (14.5%), renal (12.4%), and spleen (11%). Across all applications, the mean score was 2.5 (SD ± 0.11, 95% confidence interval, 2.39–2.54). Ultrasound resulted
in a management change in 84% of cases. Major changes in management related to medication choice (42.4%), admission (30%), transfer to a higher level of care (28.1%), and performance of procedures (23.3%).

Conclusions: During this six-month training program in Rwanda, participants used POCUS for a range of applications. The remote QA process captured 51% of ultrasounds performed. Of scans with QA, the average score was adequate to good. POCUS routinely changed clinical management. This study demonstrates the impact of POCUS in a resource-limited setting.

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State of the art: Rescue intubation through supraglottic airways

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Abstract: The use of supraglottic airways as rescue devices in failed intubation and resuscitation has become well accepted in emergency practice. Many offer or advertise the possibility of intubation through the device, but techniques and success rates vary greatly. Intubation can be achieved blindly, with the use a bougie or introducer, or with fiberoptic guidance. In this review, I examine the evidence behind different devices with various techniques, present the data from our ongoing research, suggest further research directions and propose practical guidelines for clinical use in emergencies.

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Patterns of injury in penetrating sharp trauma in a Provincial KwaZulu-Natal Hospital

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Introduction: Attendances to provincial emergency centres involving penetrating sharp trauma are a frequent occurrence and represent a significant burden on a department’s workload. The majority of studies in this area have been based in major urban hospitals. This is an observational study of patients attending Stanger Hospital Emergency Centre in the rural district of Ilembe with penetrating sharp trauma.

Method: Notes collected from a two-month period in 2011 were reviewed and data collected to determine patient characteristics, wounds inflicted, distribution of injury and patient outcome.

Results: 127 case notes were analysed. The majority of patients were young (median age 27 years), male (108/127; 85%), and had reportedly ingested alcohol (84/127; 66.1%). Most had more than one wound (median 2 wounds per patient) but did not suffer from significant blood loss and there were no deaths. Only 15/127 (11.8%) required hospital admission.

Discussion: Most patients suffered multiple wounds over multiple sites but these did not frequently require admission to hospital and caused no deaths. As long as clinicians remain vigilant for more severe injuries, these patients can generally be treated in low resourced environments. The majority of patients were discharged directly from the Emergency Centre making it the best place for these people to receive health education to prevent further injuries.

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Epidemiology of traumatic brain injury patients at Kilimanjaro Christian medical centre, Moshi, Tanzania

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Introduction: Traumatic brain injury (TBI) affects 10 million people annually. Clinical epidemiology can inform prevention initiatives to curb this burden. Kilimanjaro Christian Medical Centre (KCMC) is a referral hospital for 11 million people with neurosurgical capacity located in Moshi, Tanzania.

Methods: Secondary analysis of a prospective observational TBI Acute Care Registry at the KCMC Casualty Department (CD) included all patients presenting between May 5 and July 27th, 2013. Means with standard deviations (SD), Fisher’s exact or Chi-squared with a binomial logistic regression reporting Odds Ratios (OR) with 95% confidence intervals (CI) was calculated using Stata IC (College Station, TX).

Results: 171 total patients were enrolled in the TBI Registry. The mean age was 32.1 years (range 1–99, SD 16.6), with 71% between 15 and 45 years of age. 82% were male and 28% cases involved alcohol. Causes of TBI were road traffic injuries (RTI) (74%), assaults (13%) or falls (8%), 52% of RTI’s involved motorcycle users. The mean Glasgow Coma Score (GCS) was 12.6 (range 3-15, SD 4.04) with 19% of patients having severe TBI (GCS of <9). The overall mortality rate was 13% for all CD patients, 14% for admitted patients and 80% for patients admitted to the ICU. Death was associated with hypoxia (OR 16.0 (95% CI 5.4, 47.5), hypotension (OR 7.3 (95% CI 1.4, 38.4) and low GCS (GCS <9, OR 29.7 (95% CI 9.6, 92.0). Severe TBI had a 53% mortality rate, while moderate and mild TBI 12% and 3% fatality rates respectively. Of severe TBI patients, 63.6% suffered disability from their injury compared to 27% of moderate and 3% of mild TBI.

Conclusion: Most TBI patients were young males involved in road traffic collisions, predominantly involving motorcycles. Over a quarter of them involve alcohol. Our data support that TBI causes significant death and disability.

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SMS picture messaging as an adjunct in emergency medicine training – pilot project on feasibility in an African healthcare system

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Introduction: Advances in mobile phone technology have aided the development of new methods of instantaneous communication, such as SMS picture messaging.

Aims: To assess the feasibility of SMS picture messaging as an adjunct in Emergency Medicine (EM) training and identify factors which might impact on its use in Africa.