

Management of Non-Cancer Patients” as a preliminary guide for health care professionals. The draft document on the End-of-Life Care Guidelines has been formulated and is currently being reviewed by the relevant medical and legal stakeholders. PCTF has organized CME lectures on palliative care all over the country for health care professionals, and also conducted lectures, exhibitions, and mass media programs to sensitize the public on palliative care.

Discussion: Within a brief period, PCTF has played a key role to recognize palliative care by contributing to policy making, training, and public sensitization in palliative and end-of-life care in Sri Lanka.

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Establishment of Research Model on the Correlation Between Psychological Stress Intensity and Personality in Nursing Students Under Different Pressure Sources

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Introduction: In recent years, sudden disasters are occurring frequently, resulting in inestimable casualties and losses. Hence, knowing what personality traits are suitable for stressful works is of vital importance for selecting applicable nurses for disaster relief operation, and helping the nursing students to have a clearer career orientation when choosing the specialty direction. Stress response is divided into psychological response and physiological response. This study focused on the process of physiological response and evaluated the psychological stress intensity through monitoring physiological indexes related to the autonomic nervous system during the stress process.

Method: The experimental subjects were 16 nursing students. In the monitoring experiment, three kinds of pressures were set, including time limitation, threat assessment, and task-interference. The physiological indexes under the resting state of the experimental subjects were recorded as the resting period group (RT). Then, the nursing students performed the operation without setting the pressure condition, called the baseline period group (BL). The experimenter would record all important time nodes. The physiological indexes recorded under the three pressures were the time stress group (TS), the assessment stress group (AS), and the task-interference stress group (INS).

Results: There was no statistically significant difference in heart rate and skin temperature between RT and BL, but there was a statistically significant difference in skin resistance. The heart rate and skin temperature in the stress phase were significantly higher than those in RT and BL. According to the analysis of HRV, the difference between RT and BL has no statistical significance.

Discussion: Models can eliminate the interference of the operation itself to the recording of physiological signals. The time-stress condition caused a more psychological-stress response in nursing students than assessment and task interference. The pressure source was set up effectively and the stress model was established successfully.

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Evaluating Full-Scale Exercises to Optimize Patient Outcome in an Underground Mine

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Introduction: Major incident exercises are expensive to plan and execute, and often difficult to evaluate objectively. There is a need for a generic methodology for reporting results and experiences from major incidents so that data can be used for analysis, to compare results, exchange experiences, and for international collaboration in methodological development. Most protocols use data describing the incident hazards, pre-hospital and hospital resources available and alerted transport resources, and communication systems. However, the successful management of a rescue response during a major incident also demands a high level of command skills.

Aim: The aim of this study was to analyze the command and collaboration skills among the emergency service on-scene commanders and the mine director for safety and security during a full-scale major incident exercise in an underground mine.

Methods: The commander functions were observed during a full-scale major incident exercise. Audio and video observations and notes were analyzed using a study-specific scheme developed through a Delphi study, including inter-agency collaborative support and efforts of early life-saving interventions; relevant resources and equipment; and shared and communicated decisions about safety, situation awareness and medical guidelines for response. After the exercise additional interviews were made with those responsible for the command functions.

Results: Preliminary results indicate that most decisions were not taken in collaboration. Elaborated results will be presented at the conference.

Discussion: Command and collaboration skills can benefit from objective evaluations of full-scale major incident exercises to identify areas that must be improved to optimize patient outcome.

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Evaluation of Published Expedition Medical Resources Compared with Treatment Protocol Recommended Medical Resources for Injuries and Illnesses Encountered on Expeditions

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Introduction: People are increasingly embarking on expeditions into remote wilderness environments and subjecting themselves to increased medical risk. Medical provisions for the management of anticipated injuries and illnesses must be selected carefully due to financial and size and weight constraints on expeditions. Literature suggests decisions surrounding medical resource provisioning are rarely made using evidence-based methods.

Aim: The aim of this study was to evaluate the medical provisions taken on expeditions against the medical provisions

recommended as best practice in published treatment protocols for the management of conditions encountered on expeditions.

Methods: Firstly, a mixed methods study approach was used to develop a conceptual model linking injuries and illnesses with the medical resources (equipment and medications) recommended for their management. In the second part of the study, injuries and illnesses reported in four studies from the published literature were analyzed using the conceptual model.

Results: Expected medical resources for the injury and illness burden were compared to the medical resources included in published equipment and medication lists. It was found that medical resources taken on expeditions were both significantly under-equipped ($p < 0.01$) compared with the list of provisions recommended by the treatment protocols, but also included a range of resources that were not indicated as part of best practice.

Discussion: These findings suggest that unnecessary over-provisioning and under-provisioning risks are being assumed on expeditions. Further research supporting the development of a medical provision recommender system may provide a more evidence-informed method of matching medical resource requirements to anticipated injury and illness profiles on expeditions.

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Evidence for Residual Immunity to Smallpox After Vaccination

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Introduction: Smallpox has been eradicated, but advances in synthetic biology have increased the risk of its re-emergence. Residual immunity in individuals who were previously vaccinated may mitigate the impact of an outbreak, but there is a high degree of uncertainty regarding the duration and degree of residual immunity.

Methods: A systematic literature review using the PRISMA criteria was conducted to quantify the duration and extent of residual immunity to smallpox after vaccination. 29 papers related to quantifying residual immunity to smallpox after vaccination were identified.

Results: Duration of protection of >20 years was consistently shown in the 16 retrospective cross-sectional studies, while the lowest estimated duration of protection was 11.7 years among the modeling studies. Childhood vaccination conferred longer duration of protection than vaccination in adulthood. Multiple vaccinations did not appear to improve immunity. Most studies suggest a longer duration of residual immunity (at least 20 years) than assumed in smallpox guidelines. Estimates from modeling studies were less but still greater than the 3–10 years suggested by the WHO Committee on International Quarantine or US CDC guidelines. These recommendations were probably based on observations and studies conducted

while smallpox was endemic. The cut-off values for pre-existing antibody levels of $>1:20$ and $>1:32$ reported during the period of endemic smallpox circulation may not be relevant to the contemporary population but have been used as a threshold for identifying people with residual immunity in post-eradication era studies.

Discussion: Of the total antibodies produced in response to smallpox vaccination, neutralizing antibodies have shown to contribute significantly to immunological memory. Although the mechanism of immunological memory and boosting is unclear, revaccination is likely to result in a more robust response. There is a need to improve the evidence base for estimates on residual immunity to better inform planning and preparedness for re-emergent smallpox.

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An Evaluation of the Self-Reported Knowledge Base of Disaster Management Core Competencies of Australian Paramedics

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Introduction: Evidence-based training and curriculum are seen as vital in order to be successful in preparing paramedics for an effective disaster response. The creation of broadly recognized standard core competencies to support the development of disaster response education and training courses for general health care providers and specific health care professionals will help to ensure that medical personnel are truly prepared to care for victims of mass casualty events.

Aim: To identify current Australian operational paramedic's specific disaster management education and knowledge as it relates to disaster management core competencies identified throughout the literature and the frequency of measures/techniques which these paramedics use to maintain competency and currency.

Methods: Paramedics from all states of Australia were invited to complete an anonymous online survey. Two professional bodies distributed the survey via social media and a major ambulance service was surveyed via email.

Results: The study population includes 130 respondents who self-identified as a currently practicing Australian paramedic. Paramedics from all states except South Australia responded, with the majority coming from Queensland Ambulance Service ($N = 81\%$). In terms of experience, 81.54% of respondents report being qualified for greater than 5 years. Initial analysis shows that despite the extensive experience of the practitioners surveyed when asked to rate from high to low their level of knowledge of specific disaster management core competencies a number of gaps exist.

Discussion: Core competencies are a defined level of expertise that is essential or fundamental to a particular job, and serve to form the foundation of education, training, and practice for operational service delivery. While more research is needed, these results may help inform industry, government, and education providers to better understand and to more efficiently