ONLINE APPENDIX/SUPPLEMENTARY MATERIALS

**Full List of Essential Recommendations**

**Chapter Three: Challenges facing Paediatric Emergency Medicine**

1. As emergency healthcare systems mature, countries must consider the special requirements of the paediatric patient with respect to environment, equipment and staff skills & training, ensuring they meet the needs of both the paediatric and adult population of emergency patients. 2. Where EDs see patients of all ages, there must be a lead doctor and lead nurse for paediatric issues, this Paediatric Emergency Care Coordinator or “paediatric champion” would lead the efforts in raising awareness of the specific needs of children in their individual setting.

**Chapter Four: An Integrated Service Design**

1. Pre-hospital, primary care and hospital services for emergency paediatric care must be integrated, and the role and capabilities of each ED within the regional network should be clear, communicated to stakeholders within the network, and coordinated with Emergency Medical Service (EMS).

2. Clear, written guidelines for transfer criteria to specialist paediatric centers must exist, and mechanisms for swift and expert transfer agreed.

3. All EDs must be prepared at all times to deal with the initial resuscitation of a child brought in unexpectedly.

4. The ED must be staffed and equipped to deal with the full range of ages and clinical presentations of children that it normally receives.

5. Access to specialist paediatric advice to the ED must exist 24 hours a day (by telephone, telemedicine, internet or in person).

**Chapter Five: Child and Family Centered Care**

1. Child and family centred care (CFCC) must be a priority for staff and managers through clinical practice, staffing, and environmental design.

2. The ED environment must be safe for children.

3. Children must be separated from distressing sights and sounds of other patients, with some separation from the main waiting area for adults.

4. The option of family-member presence must be encouraged for all aspects of ED care.

5. The ED must contain enough child-orientated treatment rooms (depending on the proportion of child ED attenders) with sufficient space to accommodate family members.

6. Younger children must have access to nutrition (this includes provision for breast- feeding).

7. ED staff must give health advice and explanations in clear language and ensure they have been understood, being considerate that the family will usually have responsibility for delivering ongoing healthcare.

8. Guidelines for medical treatment should be available for balancing the wishes of the child, legal responsibility of the guardian and the child’s best interests.

**Chapter Six: Initial Assessment of an Ill or Injured Child**

1. Every child arriving at an ED must have a rapid visual inspection very soon after arrival.

2. All staff members (including non-healthcare qualified) must be trained and empowered to alert others to the arrival of a seriously ill child.

3. All ED clinical staff must be highly competent in recognising the seriously ill or injured child, and recognising a deterioration in a child's condition.

4. A critically ill or injured child must be moved immediately to a suitable resuscitation area – there should not be delays to complete triage processes in the triage area.

5. There must be no barriers to accessing immediate initial assessment by a qualified staff member trained in the recognition of serious illness in children.

6. All patients presenting for emergency care must receive a full initial assessment by suitably trained staff within 15 minutes of arrival.

7. The choice of an efficient model of initial assessment for children must take into consideration time available, staff skills, case mix and current workload.

8. All children must have vital signs (temperature, respiratory rate and heart rate) measured at initial assessment; blood pressure and oxygen saturations should be included if the child is seriously ill, but unstable or critically-ill looking children should not be delayed in triage to measure vital signs, these can be measured in the resuscitation area.

9. Drug dosages must be based on an accurate weight, but weight can be estimated using standard tools for very sick or unstable children.

10. All patients in moderate or severe pain must have pain relief provided within 30 minutes of arrival.

**Chapter Seven: Stabilising and Treating an Ill or Injured Child**

1. There must be a defined ‘Resuscitation Team’ of clearly identified staff from within the ED or hospital.

2. All ED clinical staff must be highly competent in basic paediatric life support.

3. All ED staff on each shift must be competent in resuscitating until therapeutic goals of hypoxia, shock, cardiac dysfunction and status epilepticus are resolved.

4. Staff able to provide advanced airway management must be available within 5 minutes of the need being identified.

5. Trained staff must stay with a critically ill child until moved to a dedicated critical care environment or recovery happens.

6. Resuscitation algorithms and equipment should be available in resuscitation areas and ideally practiced regularly with ED staff.

7. A method for estimating weight for children too unstable to be weighed must be used.

8. A ready reckoner for estimating weight based drug dosages (without the need to calculate) should be available.

9. There must be a system for 24-hour consulting with key specialists either on site or remotely, including toxicology information.

10. The ED must be supported by 24-hour basic radiology and laboratory services.

11. At discharge, careers must have advice which they understand, for managing their child’s condition and recognising deterioration.

12. All children seen in the ED must be discharged with a discharge letter to keep, and/or a letter sent to their General Practitioner.

**Chapter Eight: The Staffing of an Emergency Department**

1. ED staff must not work long continuous shifts e.g. more than 12 hours, as fatigue leads to patient care errors and decision-making errors; there must also be adequate recovery time between shifts.

2. Staff numbers must be adequate to allow safe coverage of all areas of the ED where paediatric patients are being cared for, at all times.

3. Appropriate organisation of paediatric specific equipment, supplies and medications that allows for staff to quickly and safely access them during resuscitations.

4. Staff in EDs should have access to decision support tools which assist in correct medication dosing, equipment sizing, and in clinical pathways for paediatric illness and injury.

5. In academic institutions clinical staff members must have sufficient protected non-clinical time for other aspects of their job, such as research, education and training, and safety/quality improvement activities.

**Chapter Nine: Staff Training and Competencies**

1. All ED staff must be competent to deal with the full range of illnesses, injuries in all age-groups and understand the differences between children and adults.

2. Refresher training must be available and timely in order for staff to retain their knowledge and skills in paediatric resuscitation.

3. ED staff must focus effort to coordinate, learn and work as a team.

4. Senior staff must be physically present and available to teach junior ED staff (medical and nursing) while they work.

5. Senior staff who teach juniors whilst they work must not have a full clinical load, so that they are able to ensure supervision and education occurs in the busy ED environment.

6. A senior ED doctor and ED nurse must be designated to have the role of creating.

**Chapter Ten: Emergency Department Equipment, Supplies & Medications**

1. Every ED must be well equipped and organised with easy access to the necessary equipment, supplies and medications needed for the care of acutely ill or injured children of all ages on a 24hour basis.

2. Equipment and medications must have a standardised and logical layout, to ensure familiarity for staff. It should also ideally match those used in allied departments (e.g. operating theatres, intensive care unit).

3. Pre-calculated resources for common or emergency drug doses and equipment sizes for children of all ages must be accessible. This includes dilution guidelines and charts for the preparation and administration of medications and parenteral fluids.

4. Resuscitation medications, supplies and equipment must be reviewed and updated as necessary with each revision of international guidelines.

5. In developing countries where the recommended paediatric emergency equipment or medications are not available, informed and rational decisions need to be made regarding suitable alternatives. Ideally this should be done in conjunction with regional and national health departments.

6. Staff should be familiar with the department’s equipment and medications.

**Chapter Eleven: Quality & Safety**

1. EDs must have a described and implemented program of continuous quality improvement with regular review of patient safety and quality of care. On a cyclical basis, it must cover high risk and high volume areas of paediatric emergency care practice.

2. Children must be weighed in kilograms, with the exception of children who require emergency stabilisation, and the weight should be recorded with the vital signs.

3. Patients emergency medical notes (documentation) must be reviewed on a regular basis to identify gaps in knowledge which result in risks to patients. Education of staff must take place to close those gaps.

4. For children who require resuscitation or emergency stabilisation, a standard method for estimating weight in kilograms must be used (e.g. length-based system).

5. The quality improvement plan of the ED must include paediatric patient and disease- specific indicators.

**Chapter Twelve: Policies, Procedures & Guidelines**

1. Policies and procedures must include the issues about the general assessment and management of paediatric patients in the ED.

2. ED staff must have access to relevant policies and procedures, based on departmental, hospital, regional or international references.

3. As the emergency care system matures, emergency care managers should incorporate evidenced based clinical care/practice guidelines for children, and educate and monitor their staff on their use.

**Chapter Thirteen: Information System and Data Analysis**

1. Sufficient attention should be given to both the design and implementation of an EDIS in a planned and stepwise process

2. The design and implementation of an EDIS should be integrated within the overall ED organisation (processes, planning, workflow).

3. A structured review process and audit cycle should be instituted early on in view of ongoing performance improvement

4. The doctor and nurse with the lead roles for paediatric emergency care must be integrally involved in the development and implementation of EDIS in ED’s which manage children.

5. EDIS must include special adaptations to meet the basic needs of paediatric patients e.g. prescribing alerts must be built in to guard against paediatric dosing errors.

6. EDIS must have the ability to connect to health information outside the ED.

**Chapter Fourteen: Pre-Hospital Care**

1. Pre-hospital (EMS) services must define the level of paediatric skills expected of responding staff.

2. All pre-hospital staff should be trained to safely assess, manage, and transport common paediatric emergencies to a pre-defined level within the pre-hospital (EMS) network; this includes scene awareness and family reassurance.

3. All pre-hospital responders must be competent in first aid and BLS for infants, children and adolescents.

4. Pre-hospital responders with advanced training must be competent in advanced life support for infants, children and adolescents.

5. All EMS vehicles must carry equipment suitable for children of all ages.

**Chapter Fifteen: Mass Casualty Incidents and Patient Surges Involving Children**

1. All pre-hospital responders who might attend a MCI/Major incident scene must be trained to effectively triage and manage children as well as adults.

2. Staff training programs for pre-hospital and hospital personnel should include coping with surges and MCI/Major incident in paediatric patients

3. MCI/Major incident planning must consider children when making hazard vulnerability assessments and case scenarios.

4. Designated sites within the hospital for decontamination and management of patients in MCI/Major incident must consider child casualties.

5. There must be pre-planned process to identify and treat unaccompanied children.

6. Equipment for MCI/Major incident victims must include appropriate types and size ranges and quantities for children.

7. Emergency medications for MCI/Major incident victims must include appropriate.

**Chapter Sixteen: Safeguarding Children & Young People**

1. All clinicians should be educated about the paramount importance of the welfare of children. 2. All clinicians who treat children, and those adults with caring responsibilities for children, should be aware of the principles of the UN Convention on the Rights of the Child 1 as well as relevant national protective legal provisions applying to children and young people.

3. All clinicians should be educated about child protection and child abuse including: a. Recognition of possible child abuse. b. The clinical assessment of a child. c. Initial management of a child with possible or suspected abuse. d. The appropriate authorities to notify about a case of possible or suspected child abuse.

4. Clinicians must be aware of and observe local laws regarding consent to undertake examinations of children.

5. All clinicians must act in the best interests of children in all of their interactions with children, young people, families, policy-makers and other professionals.

6. Where there is the possibility of child abuse the first responsibility of ED staff must be to attend to the child’s needs including treatment of injuries and the provision of analgesia.

7. ED information systems must be configured to identify children attending frequently, and those with known safeguarding concerns.

8. A referral and notification system must exist, which is compliant with legal / regional guidelines, and ED staff must be mandated to refer suspected child protection cases via this system.

9. Clinicians must be aware of and observe local laws regarding consent to undertake examinations of children.

10. Patients must be managed in a culturally appropriate and sensitive manner; if language barriers exist, a translator must be used in safeguarding cases.

11. Potentially vulnerable children and young adults should not be discharged from the ED until a place of safety is identified.

12. The lead doctor for paediatric issues in the ED must have overall responsibility for ensuring that safeguarding issues are identified by staff and notified correctly; this should be included in the ED’s continuous quality improvement program.

13. Clinicians who treat children must acquire knowledge and skills in the physical, psychological and emotional assessment of child abuse in all its forms, the assessment of child development and parenting skills, the utilisation of community resources, and the clinician’s legal responsibilities relating to child abuse in the specific country in which the clinician works. 14. All clinicians need to be aware that all forms of abuse of children by other children can occur. Recognition that this may be a result of prior or current abuse of the alleged abuser must be at the forefront of the clinician’s mind when such situations are suspected or encountered. 15. It is essential that the clinician record the history and examination findings in the Emergency Department medical chart contemporaneously during the evaluation process. Any injuries present should be documented using photographs, illustrations, and detailed descriptions.

16. Clinicians should recognise that child abuse and neglect is a complex problem and more than one type of treatment or service may be needed to help abused children and their families. The development of appropriate treatment requires contributions from many professions, including medicine, law, nursing, education, psychology and social work.

**Chapter Seventeen: Adolescents, Mental Health & Substance Misuse**

1. EDs must consider the needs of adolescent patients as distinct from those of young children and of adults.

2. Patients who arrive with a mental health/substance misuse problem must receive a timely response by experienced staff to determine the severity of illness, degree of stress and provide medical stabilisation.

3. All ED staff must be familiar with legislation surrounding consent, confidentiality and mental capacity of patients under the legal age of adulthood.

4. Staff involved in using restraint must be trained to do so, specifically for paediatric patients.

**Chapter Eighteen: Death of a Child in the Emergency Department**

1 EM physicians must be familiar with the laws of their country and state, in addition to the policies of their institutions, regarding the death of a child.

2. CPR must be administered initially (until information is verified) unless there are unmistakable signs of death or there is a legally valid written directive stating not to initiate CPR or other forms of life saving treatment.

3. ED senior staff and managers must ensure that their staff members are prepared for and helped with the emotional consequence of dealing with child death.

4. EM staff must report on any case where death is suspected to be the result of neglect or abuse, to the relevant authorities (Police or other) within the country’s law and institutional policy.

**Chapter Nineteen: Advanced Training and Academic Research**

1. In order for an ED to be seen as academic, the ED must foster education in PEM, and participate in creating publishable research, usually under the umbrella of a university.

2. All PEM staff in established PEM training programs must have basic knowledge of best practice in education and research concepts, to further develop PEM as a distinct specialty of medicine.