

**Counties Manukau
District Health Board**

**Acute Surgery and Trauma Services
Health Services Plan**

February 2008

1.0 Current Services

The CMDHB Trauma Service is led by the CMDHB General Surgery Service and provides a secondary and tertiary level service to the acutely presenting trauma patient across multiple specialties at Middlemore Hospital. Currently the Trauma Service is focused on development of systems and processes involved in the immediate care of trauma patients, the coordination of complex trauma patients, and in identifying and addressing gaps at the patient level. Within CMDHB patients are admitted under the specialty of the principle injury type with the Trauma service having input into a patient's care when the patient has multiple injuries involving the care from several specialty teams.

The Trauma Service at CMDHB concentrates on the management of patients with major trauma i.e. patients with an ISS (Injury Severity Score) score of >15 rather than the higher number of moderate trauma patients (ISS score of 15-9) or minor trauma patients (ISS of 8 -0). While Trauma Service systems and processes, and auditing activity needs to be able to include patients with minor and moderate injuries, individual patient care for these patients is generally not referred to the Trauma Team but is managed by the appropriate specialty team. By far the largest numbers of trauma injuries are minor injuries dealt with appropriately by the relevant specialty team (e.g. hand injuries, fractures, lacerations) with minimal involvement of the trauma team.

Whilst there are nationally based service specifications on pre-hospital care for the trauma patient, there are no national Trauma Service Specifications. Evidence to inform local service development is therefore taken from a number of sources.

The Trauma Report¹ notes that ready access to trauma services is essential in achieving good health outcomes for patients with severe trauma. This Trauma Report formulated draft national guidelines for New Zealand and Australia that define levels of trauma care services required to deliver best patient outcomes for specified categories of trauma. It concluded that:

- Seriously injured people should be taken directly to a facility identified as having a capability to stabilise or definitively manage severe trauma
- The coordination and integration of trauma care is essential and best achieved by establishing regional systems of trauma care overseen by regional emergency care committees
- These systems should involve seamless integration of pre-hospital care, hospital care and rehabilitation

Currently Counties Manukau trauma patients are being taken directly to the closest general hospital as is proposed in the Trauma Report, including those with multi-system injuries requiring resuscitation and stabilisation. St John Ambulance personnel, at times, use personal discretion to bypass the closest hospital for injuries that are not immediately life threatening to take the patient to a hospital capable of providing definitive care.

While regional trauma care coordination networks were developed in other NZ regions, there has been no metropolitan-Auckland development of a regional Emergency Care Committee. There is however regular discussion between the different trauma services regarding practical issues and opportunities for service improvement.

The CMDHB Health Service planning approach for providing care across the care continuum is consistent and work is currently being undertaken to support the seamless movement of patients through the healthcare system.

The 1999 Roadside to Bedside Report² extended the Trauma Report and further identified the critical features of an acute management system as being:

¹ Royal Australasian College of Surgeons; New Zealand Trauma Committee Guidelines for a Structured Approach to the Provision of Optimal Trauma Care 1994

² Ministry of Health; Roadside to Bedside A 24 hour Clinically Integrated Acute Management System For New Zealand March 1999 www.moh.govt.nz accessed 10/12/2007

- Establishment of regional networks is essential to the provision of comprehensive services. The hub and spoke type networks need to provide a range of service levels and cooperate at a national level to take account of services that are only provided in limited centres.
- Delivering patients to the nearest hospital capable of providing definitive care with the expectation that the majority of patients will be definitively managed in the facility closest to the place where the emergency occurs. Treating patients at a hospital capable of providing definitive care improves the timeliness of treatment by cutting out unnecessary stages in assessment, diagnosis and treatment.
- Capability for rescue through resuscitation and stabilisation by health professionals or at a facility instead of being transferred to a hospital for definitive care.
- Integration of all services to ensure that services are patient focused, comprehensive, delivered in a timely fashion and provide quality care.
- Appropriate emergency transport systems that achieve right time and right care aims.
- Agreed protocols, guidelines and standards that are nationally agreed, consistent and regularly maintained. Emergency Departments need to comply with triage guidelines to ensure all patients are seen within appropriate timeframes including psychiatric liaison/triage capabilities.
- Workforce development to ensure the level of staffing and supervision appropriately reflects the complexity of the cases seen.
- Access to telecommunications and emergency response which includes public confidence in the 111 system and use of decision support systems and technology to make specialist expertise more widely accessible.

Currently the CMDHB Trauma Service provides a weekday service including:

- 0.125 FTE Clinical Director, General/Vascular Surgeon with an interest in trauma. This role has a leadership focus; to develop the infrastructure systems required to support trauma care; and to provide clinical oversight to care of the multidisciplinary injured patient. The provision of trauma surgery is provided by many surgeons across all surgical specialties as part of 24/7 acute responsibilities.
- 1.0 FTE Registrar/Trauma Fellow through General Surgery rotations. The principle role and responsibilities of this position include the case management and coordination of care for the multiply injured patient in conjunction with the nurse specialist particularly those patients with an ISS>15 and others on an as required basis. Research and data analysis are also part of the role. Supervision from senior staff is key to mentoring and functioning of this position.
- 1.0 FTE Trauma Nurse Specialist whose principal role is to case manage care and coordinate services for major trauma patients. The Nurse Specialist is also responsible for management of trauma-related information as well as fulfilling regional liaison functions.
- 0.5 FTE Data Entry Clerk for the entry of data to the trauma database.

Trauma admissions to Middlemore are identified through the daily running of a report that identifies all acute inpatient admissions regardless of cause of admission. While most acute presentations following trauma can be identified by having an ACC number, identification of the serious trauma patient is then reliant upon manual filtering of the report by the Trauma Nurse Specialist. This process does not detect a number of patient types (e.g. patients transferred directly to a ward/ICU from another hospital).

Pre Hospital Care

St John Ambulance is the major provider of pre-hospital trauma care. Generally care coordination involves the transportation of the patient to the nearest hospital servicing the geographic area within which the traumatic injury occurred. St John Ambulance staff in discussion with treating hospitals make individual case exceptions where it is known that the local hospital does not provide definitive services or the patient condition is assessed as not being at further risk e.g. a moderate burns patient.

General Practitioners and Accident and Medicine Clinics are significant referrers of patients to the hospital systems. Whilst most GP's refer patients to the DHB of domicile, this is not always the case and some trauma patients are being referred and accepted by Auckland-based DHBs outside agreed referral patterns.

Emergency Care (EC)

Emergency Care is the point of entry for all trauma patients into CMDHB with the exception of arranged inpatient to inpatient transfers of stable trauma patients from another hospital. Emergency Care operates a trauma-call system, (otherwise known as a surgical emergency call) to summon staff for both known impending trauma presentations or for un-notified presentations. The Team Leader for the management of the patient is usually the Emergency Specialist, but it may also be an ICU Consultant, the Trauma Fellow or a Senior EC Registrar. They are supported by a Doctor responsible for airway management (usually the ICU registrar), a Circulation and Procedure Doctor (either an Emergency Care or Surgical registrar), and a team of EC nursing staff. EC has the predominant role in immediate resuscitation and stabilisation of trauma patients.

Surgical Specialities

Widely varying scenarios create multiple types of injuries that present as trauma to Middlemore Hospital. Each patient needs to be assessed as to the mix of specialty input they require. In order to effectively and safely manage the sometimes life and limb threatening natures of these injuries, the co-location of services allows for timely access to assess and treat patients. Acute surgical specialities available at Middlemore Hospital include General Surgery, Vascular Surgery, Orthopaedic Surgery, Plastic Surgery, Burn Surgery and Hand Surgery. In addition ORL provides a responsive service for major trauma patients at Middlemore Hospital from ORL team based at the Manukau Campus.

Intensive Care Unit

Access to an intensive care environment to provide close physiological support and monitoring and potentially mechanical ventilation to the major trauma patient is critical. MMH has capacity to manage select children where their injuries do not involve paediatric surgeons. i.e. children with orthopaedic or plastic surgery requirements can be appropriately managed via Middlemore Hospital ICU - especially during the resuscitation and stabilisation phase. Longer term and more complex paediatrics are transferred to Starship Hospital at ADHB.

Radiology Services

Radiology provides an important component in the assessment and care in trauma management, including plain films, ultrasound, CT, MRI and interventional vascular procedures. Urgent levels of access for some procedures are life and limb-saving for the patient. With the current exception of MRI, all these radiology services are available 24/7. Links are in place for consultation with ADHB clinicians on MRI and other specialist scans when this is required e.g. neuro-radiology.

ADHB Tertiary Services

CMDHB is supported by ADHB in the provision of a number of tertiary services that may be required by some major trauma patients at Middlemore Hospital i.e. Neurosurgery, Cardiothoracic Surgery and Paediatric Surgery. Patients requiring these services are initially stabilised at CMDHB then transferred to ADHB.

Rehabilitation Services

A critical component to an integrated service for trauma patients is an effective rehabilitation programme to minimise disability and prevent complications. A properly resourced rehabilitation service is seen as part of a modern trauma system. Rehabilitation begins at admission and must be integrated through acute care into dedicated rehabilitation settings. The aims of rehabilitation are to prevent complications and optimise the physical and social functioning of patients so as to allow their planned return to the community and to recognise cognitive and emotional complications of traumatic brain injury, even in the absence of physical sequelae³.

³ The Royal College of Surgeons of England/British Orthopedic Association Better Care for the Severely Injured. July 2000

Data Analysis – CMDHB

The “Collector” system is used at CMDHB to collect data on trauma patients. This programme is used across Australia and New Zealand with frequent sharing of information between sites and the publication of collective analysis. Even though further supported by Decision Support systems, data collection issues make data analysis difficult and further refinement of systems and processes is required to collect and record the data. Further improvement in data management is required for service planning and quality management in the future.

Analysis of admissions for the two years 2005/2006 and 2006/2007 indicates:

- Annual presentations at CMDHB are approximately 100 major trauma admissions (i.e. patients with an ISS of >15) with this group having a 90% survival rate. 60-65% of these admissions have had ISS scores of 16-24 with the remaining patients being 25+. A select few patients had scores greater than 41.
- In 2006/07 ADHB had 38 transfers from CMDHB for definitive management. Not all of these patients were CMDHB domiciled but all had presented to CMDHB as trauma cases and are included in the total admission figures. Using the AIS (Abbreviated Injury Scale)⁴, to better help define region of injury and severity of that injury, the data shows that a principal head injury is the reason for 33 of these transfers followed by chest injury for a further 5. Only 1 of the patients did not have some form of head injury. On the AIS injury scale 35 patients had severe or critical injuries. Whilst the AIS does not reflect the combined effects of multiple injuries it can give some indication of an overall severity score when used as part of ISS⁵.
- Blunt injuries and motor vehicle accidents feature highly as do weekend presentations (Saturdays and Sundays particularly between the afternoon and evening hours of 1200–2000hrs).
- The average length of inpatient stay for major trauma patients was 18 days with the median in 06/07 being 8.5.
- ICU is an important component of trauma care with a significant proportion of patients needing ICU admission albeit for relatively short median lengths of stay (3-7 days).

CMDHB Trauma cases Adult and Paediatric admitted with ISS>15

		2006/2007	2005/2006	2005 Calendar
Total		101	113	92
Deceased		10	13	11
Type of injury	Blunt	90	95	
	Penetrating	3	5	
	Burn	8	12	
	Not Given		1	
Cause of injury	Motor Vehicle	40	42	31
	Other	23	34	21
	Pedestrian	10	11	5
	Fall	9	12	12
	Burns	8		10
Principle Diagnosis	Traumatic Pneumothorax	6		
	Traumatic Subdural	5	8	
	Traumatic Subarachnoid	3	6	
	Lac Spleen	3		
ISS	16-24	66	71	54
	25-40	32	37	35
	41+	3	5	3

⁴ The AIS is an anatomical scoring system, and the most widely used trauma scoring system used internationally

⁵ European Road Safety Observation (2006), Post Impact Care, www.erso.eu accessed 21/01/2008

ALOS days		18	12	16.7
Median LOS days		8.5	9	
Admissions to ICU		43	40	41
Mean ICU days		3	2.5	6.2
Ave Mech Vent Hrs		42	34	
Day of Admission	Saturday	21	17	15
	Sunday	16	24	16
	Monday	12	19	13
	Tuesday	17	12	10
	Wednesday	13	10	15
	Thursday	9	13	11
	Friday	9	11	12
Time of presentation	2400 - 0400hrs	21	17	
	0400 - 0800hrs	12	8	
	0800 - 1200 hrs	13	13	
	1200 -1600hrs	23	21	
	1600 - 2000hrs	19	25	
	2000 - 2400hrs	9	22	
Route of Presentation	Ambulance	89		85
Discharge	Home	68	56	
	ADHB	11	20	
	Rehab	9	3	
	Deceased	10	13	11

CMDHB Transfers (Adult) to Auckland Hospital

		2006/2007	2004-2006 Calendar
Total		38	191
Deceased		2	8
Type of injury	Blunt	38	176
	Penetrating	0	15
	Burn	0	
Cause of injury	Motor Vehicle	7	36
	Other	23	88
	Pedestrian	0	0
	Fall	7	38
Principle Diagnosis	AIS - Head	32	
Maximum AIS Injury ⁶	AIS - Face		
	AIS - Chest	5	
	AIS - Abdomen	1	
	AIS - Pelvis or extremities		
	AIS - External		
ISS	16-24	29	73
	25-40	8	33
	41+	1	4
ALOS days		7.1	
Median LOS days			

⁶ by region

Admissions to ICU			
Mean ICU days		1.1	
Ave Mech Vent Hrs			
Day of Admission	Saturday	6	
	Sunday	14	
	Monday	8	
	Tuesday	5	
	Wednesday	0	
	Thursday	4	
	Friday	1	
Time of presentation	2400 - 0400hrs	8	
	0400 - 0800hrs	5	
	0800 - 1200 hrs	5	
	1200 -1600hrs	5	
	1600 - 2000hrs	8	
	2000 - 2400hrs	7	
Route of Presentation	Ambulance	27	
Discharge	Home	20	
	CMDHB	8	
	Rehab	7	
	Deceased	2	

Key Components of the Acute Surgery Trauma model of Care at CMDHB

- Seriously injured patients are brought directly to CMDHB for definitive care with a number subsequently transferred on. In 2006/07 38% of patients with ISS>15 presenting to Middlemore Hospital were transferred out to ADHB for definitive care. The majority of the patients with major trauma are able to be managed locally with the referral of patients requiring neurosurgery or cardiothoracic surgery being transferred to ADHB.
- The number of patients with ISS>15 is relatively small averaging two patients week.
- Large volumes of patients with minor or moderate trauma present. The Collector system recorded 955 adult or paediatric minor/moderate trauma cases for the 2007 calendar year. Of these 711 or 75% were classified as minor and had ISS scores of 1-8. The remaining 244 or 25% were classified as moderate trauma and had ISS scores of 9-15. Children represented 22% of the total trauma patients. Minor or moderate patients are generally managed as part of individual services acute presentations unless they require coordination across multiple specialties. Of note, nearly 80% of all these injuries were from falls or other causes (e.g. burns) rather than vehicle or pedestrian causes. Four patients died during the hospital admission.
- Regional networks are utilised, particularly for paediatric patients, head-injured patients for whom neurosurgery may be indicated, or for patients with chest injuries for whom cardiothoracic surgery may be indicated.
- There is limited daily coordinated management of major trauma patients from the trauma service. Case management of all patients with minor and moderate injuries is excluded unless specifically requested.
- Within the Orthopaedic service there is significant expertise in the management of both spinal and pelvis fractures resulting in CMDHB being the tertiary referral centre with out of area transfers from other DHBs occurring. In 2005/2006 there were 82 non-CMDHB domiciled patients admitted equating to 28% of total spinal and pelvis fracture admissions and in 2006/2007 100 patients equalling 23% of total spinal and pelvic admissions to CMDHB. In 2005/2006 41 patients or 50% of the non CMDHB patient admissions were Auckland DHB or Waitemata DHB domiciled and 59 patients or 59% of admissions in 2006/2007.
- Data collection and reporting currently requires further attention to ensure that trauma data supports quality review and trend analysis.

NSW Role Delineation Model

Role delineation is a classification system which describes the level of complexity of a clinical service by considering support services, staff profile, minimum safety standards and other requirements necessary to ensure that clinical services are provided safely and are appropriately supported. The role delineation table below needs to be read in conjunction with the Guide to Role Delineation in order to understand the service level descriptions.⁷

Trauma Services Related Level Support and Core Services																			
Trauma Service Level	Pathology	Diagnostic Imaging	Nuclear Medicine	Anaesthetics	ICU	Theatre Suite	Emergency Care	General Medicine	Neurology	General Surgery	Cardiothoracic	Neurosurgery	Ophthalmology	Orthopaedics	Plastic	Urology	Vascular	Rehabilitation	
Actual CMDHB	5	5-6	0	6	6	6	5	6	4	5-6	0	0	5	5-6	5-6	4	5-6	5	
Provided ADHB			4								6	6				6			
Required Area (equivalent is DHB wide)	4	4	4	4	4	4	4	4	4	4	*	**	5	4	4	*	4	4	4
Supra Area (equivalent is regional)	6	6	5	6	6	6	6	5	5	5	5	6	5	5	5	5	5	5	6
	* Access to Level 5 of this service by appropriate interhospital transfer																		
	** Where Level 5 Neurosurgery not appropriate, level 4 plus access to level 5 by established interhospital transfer																		

The above table demonstrates that CMDHB currently has supporting services to support a Regional Area service. The Supra Area service is provided by ADHB.

2.0 Key Issues

CMDHB needs to confirm in an ongoing manner that the appropriate level of services is being provided locally and that the Trauma Service is meeting standards and operating consistent with external frameworks. This needs to be an ongoing process and take into consideration the availability of supporting local services – particularly radiology, ICU, Vascular Surgery, Orthopaedic Surgery and General Surgery. Currently these services all provide comprehensive on-site 24/7 services.

Systems and processes at Middlemore Hospital need to be configured both to provide high quality services for managing major trauma patients with their associated high risk profiles, and for effective and efficient management of the majority of patients which are classified as moderate or minor.

Accurate data collection to support clinical and service developments remains a challenge with changes needed in the systems and processes around this.

Changes in systems and processes, and service developments within Middlemore Hospital for facilitating transfer of patients to Auckland City Hospital are required as transfers may be delayed due to staff not being readily available to assist with transfer of patients.

⁷ NSW Health Department; Guide to the Role Delineation of Health Services, Third Edition 2002

3.0 Trends and Future Directions

A review of literature in relation to Trauma management has informed the development of Trauma Services at CMDHB. Management of Trauma remains a significant driver of healthcare services in New Zealand. Regardless of the success of injury prevention initiatives New Zealand's healthcare system needs to be prepared to accurately and effectively identify, transport and treat injured patients. Effective treatment of trauma patients requires a well integrated trauma system – with in hospital injury care well coordinated and hospital care smoothly linked with both pre-hospital care and rehabilitation. Pre-hospital care is in general well coordinated. Rehabilitation is a crucial component of an effective trauma care system, yet only a minority of trauma care providers can access timely rehabilitation services. Many patients wait in hospital past their acute care needs while awaiting access to appropriate rehabilitation.⁸

The question of 'who or what is a trauma surgeon' remains poorly addressed. The role has never been clearly defined in the Australasian clinical setting. Currently in the USA, the role of the trauma setting is changing due to difficulties in attracting surgeons to the field, and retaining surgeons, as well as due to the reduced operating on trauma occurring in many trauma centres. As subspecialties develop within general surgery, there is a very real threat to the provision of emergency general surgical care in tertiary and secondary level hospitals.⁹

The Royal College of Surgeons of England considers that "trauma care should be based on a network model incorporating a range of specialist units in a trauma system to care for all injured patients in a given region. As a minimum major trauma centres should admit more than 250 critically injured patients per year; the majority of injured patients do not need access to major trauma facilities."¹⁰

The UK National Confidential Enquiry into Patient Outcome and Death (NCEPOD) Report 2007 titled Trauma: who cares?¹¹ has recently been published. This large report is enlightening with many of the findings and resultant discussions and recommendations applicable to the New Zealand and CMDHB situation. A summary of the reports findings includes:

- A large proportion of patients received a standard of care that was less than good practice.
- Deficiencies in both organisational and clinical aspects of care occurred frequently.
- There were difficulties in identifying patients with an injury severity score of >15.
- Many clinical issues relating to lack of appreciation of severity of illness, urgency of clinical scenario and clinical decision making were related to seniority and experience of the staff involved in the immediate management of trauma patients. The provision of suitable experienced staff during evenings and nights was much lower.
- Severe trauma is not common. This has direct bearing on the clinical experience and ability to manage these patients and also to providing the infrastructure required to manage the trauma patient definitively in all centres.

The Royal College of Surgeons of England and the British Orthopaedic Association have defined a trauma system with different levels of care provision for the severely injured, by resources and specialist skills available, using a hub and spoke network of arrangement between adjacent hospitals.¹²

The Major Acute Hospital - Level 1 facilities include:

- A 24 hour resuscitative trauma team
- A 24 hour fully staffed Emergency Department (ED)
- ICU and trauma beds on the same site as the ED
- Onsite 24 hour x-ray and CT scanning
- Equivalent of 4-8 FTE consultants exclusively dealing with Orthopaedic trauma

⁸ Civil, I. Trauma: still a problem in New Zealand www.nzma.org.nz/journal/117-1201/1042/ accessed 10/12/2007

⁹ Danne, P.D. The Nature of the Trauma Surgeon, ANZ J. Surg. 2003; 73: 139

¹⁰ The Royal College of Surgeons of England. Provision of Trauma Care Policy Briefing 7 Sept 2007, www.rcseng.ac.uk/publications/docs/provision-of-trauma-care-policy-briefing

¹¹ National Confidential Enquiry into Patient Outcome and Death (NCEPOD): Trauma: who cares?, 2007

¹² The Royal College of Surgeons of England/British Orthopaedic Association Better Care for the Severely Injured. July 2000

- A dedicated trauma theatre and daily consultant orthopaedic trauma lists
- A 24 hour access Helipad close to ED with no additional secondary journey by road
- There must be onsite departments of
 - Orthopaedic trauma
 - Neurosurgery
 - General and Vascular Surgery
 - Plastic Surgery
 - Cardiothoracic or Thoracic Surgery
 - Head and Neck Surgery
 - Urology
 - Anaesthesia with intensive care
 - Interventional radiology
 - Paediatric Surgery
 - Intensive care beds for children
- A named consultant director of trauma

The Acute General Hospital - Level 2 facilities include:

- A 24 hour resuscitative trauma team
- A 24 hour fully staffed Emergency Department
- ICU and trauma beds on the same site as the ED
- Onsite 24 hour x-ray and CT scanning
- Equivalent of 6 FTE consultants exclusively dealing with Orthopaedic trauma
- A dedicated trauma theatre and daily consultant orthopaedic trauma lists
- A 24 hour access Helipad close to ED with no additional secondary journey by road
- A named consultant director of trauma

There is only one Level 1 major acute hospital in a system supported by and receiving transfers from other hospitals. Level 2 hospitals will not have all of the major surgical disciplines on site but must be able to resuscitate the severely injured.

Key Outcomes of the Health Service Plan for Acute Surgery and Trauma at CMDHB

There will be an increase in the demand for trauma services in line with the changing demographics of the CMDHB catchment. Counties Manukau has one of the fastest growing populations in New Zealand. While CMDHB remains one of the youngest populations in New Zealand, it has the largest number of relatively deprived adults and children, and is one of the fastest ageing DHB populations – particularly in the over 65 year age group which is expected to double by 2021. Servicing a projected population of 442,400 in 2006, CMDHB is the second largest DHB in NZ. By 2026, CMDHB population is forecast to be 590,300. Specialist services need to be provided within the Counties Manukau district at an upper secondary care level whilst maintaining the more advanced tertiary level services in Orthopaedics, Plastics and Burns.

Road trauma currently remains the biggest single cause of trauma presentations and will continue to do so but increasing social trends of interpersonal violence are also another significant factor behind trauma injuries.

CMDHB currently meets the required facilities for a Level 2 Trauma Centre (Regional) and will remain at this level for the foreseeable future. CMDHB has no planning intent to develop on-site departments of Neurosurgery, Cardio/Thoracic Surgery or Paediatric Surgery.

The Trauma Committee and staff overseeing trauma services need clearly articulated terms of reference that are the basis of team direction and management of services. The need for visible clinical leadership is paramount as are clinical policies and guidelines on management of trauma patients.

There is a trauma team available 24 hrs a day and 7 days per week per the trauma call system. A consultant is the team leader for the severely injured.

Given the relatively low incidence of severe trauma. The challenge of how to provide coordinated and optimised multidisciplinary care needs part of the Continuous Quality Improvement.

The future direction of care with refinement of diagnostic and surgical techniques and continuing early intervention will result in shorter lengths of stay and enhanced surgical outcomes. There needs to be a community education programme to ensure referrals from the primary sector for acute surgical issues are directed to CMDHB as the DHB of domicile.

The most common reason for patient transfer from Middlemore Hospital to Auckland City Hospital is the requirement for neurosurgery. Time to definitive neurosurgical intervention can be a major determinant of outcome however with a locally based regional unit; the need for on-site neurosurgery service should not be an issue.

Workforce issues have a significant impact on the ability to provide a consistent service. This is an international problem that perhaps may be a reflection of the low trauma workload making it difficult to develop and maintain special interests in trauma, especially given the configuration of trauma services¹³.

Coordinating trauma with other surgical speciality work as with the current model helps alleviate workforce issues and promoting trauma as a work stream for future Surgical and Emergency Care graduates will support succession planning into positions.

Clinical Nurse Specialists can be expected to have a much greater role in reviewing and coordinating patient care in trauma case management.

Access to interim care for trauma patients is difficult. The issue is both medium term placement in the immediate post acute phase until the patient is accepted for ACC funded rehabilitation. This is a long term funding issue for resolution nationally.

There is a gap and delays in the provision of acute rehabilitation services particularly for the aged less than 65. Poorly resourced rehabilitation services results in patients spending longer than necessary in acute hospital beds. Patients must have equal access to all appropriate rehabilitation services. Consideration to the development of local rehabilitation services for the acutely injured aged under 65 will be addressed as part of the HSP Rehabilitation stream including for head injury patients not requiring surgical intervention bypassing surgical wards and being transferred directly to rehabilitation wards. Continuity of care issues between spinal injury and spinal rehabilitation needs are also being addressed as part of the HSP Rehabilitation stream.

When patients are transferred to ADHB issues relating to transfer/retrieval need to be addressed. Clear accountability and responsibility for the transfer of patients in a timely manner need to be established.

There is a commitment within the DHB to continue to enhance the level of culturally appropriate care provided. Currently emergency care involves families from the time of patient presentation. Whanau accommodation is available across on the Western Campus for those in need.

Data collection and reporting systems need to be developed to enable better identification of the trauma patient for treatment purposes and so that data is accurate, complete and comparable for internal use or benchmarking with other organisations. To enable improvement process, systems and staffing needs to be considered.

4.0 Key Directions

- ✓ *CMDHB will continue to provide the current scope and complexity of trauma services for the foreseeable future. Service levels will be adjusted for demographic growth.*
- ✓ *Strengthen internal management and clinical leadership processes associated with the CMDHB Trauma Services.*

¹³ National Confidential Enquiry into Patient Outcome and Death (NCEPOD):Trauma: who cares?, 2007

- ✓ *Strengthen internal systems and processes for managing the patient pathway through CMDHB facilities (emergency, acute and rehabilitation). Ensure that patient pathways accommodate patients returned from Auckland City Hospital requiring further care or rehabilitation.*
- ✓ *CMDHB will continue to work collaboratively with ADHB on development of regional trauma networks.*
- ✓ *Strengthen local patient transfer/retrieval services to Auckland City Hospital.*
- ✓ *Strengthen data collection systems to support ongoing service development and quality review.*