Queensland Injury Surveillance Unit

QISU collects and analyses data from emergency department injury presentations on behalf of Queensland Health. Participating hospitals represent urban, rural and remote areas of Queensland. QISU publications and data are available on request for research, prevention and education activities.

INJURY BULLETIN

No. 110 **November 2010**

Mackay Safe Community Ten years on; an injury profile of Mackay Regional Council: 2009

Dr Dale Hanson, Dr Ruth Baker, Dr Mohan Swaminathan

Summary

- There were nearly 40 injury presentations per day to hospitals within the Mackay Regional Council area
- Overall, almost twice as many males presented with injuries compared to females
- The peak age group for injury presentation was 15 to 20 years of age
- Assault accounted for 5% of all injuries, but nearly 10% of all injuries in the 20 to 24 year age group
- Four times as many males presented following occupational injury compared to females
- Motor bike/ ATV related injuries accounted for more than one third of transport related injuries and nearly 4% of all injuries in the region
- Only half of the injuries occurring on farms are work related
- Severe presentations were most commonly associated with injuries due to motor vehicles, motor bikes/ ATVs or poisoning

Introduction

The Mackay Whitsunday Safe Communities was established in 2000 as a response to above average injury rates identified in the region. By August 2004 the Local Government Areas of Mackay City and Whitsunday Shire had become Queensland's first International Safe Communities designated by the World Health Organisation (WHO) Collaborating Centre on Community Safety Promotion. Following Mackay's precedent, six other Queensland Communities have subsequently established Safe Community coalitions and gone on to obtain and maintain designation as International Safe Communities; Townsville, Mt Isa, Cairns, Woodlands, Varsity Lakes and Springfield Lakes.

Since then there have been important changes in the landscape of Queensland Local Government, with Mackay Regional Council coming into existence after the amalgamation of the former Mackay City, Mirani Shire and Sarina Shire Councils on 15th March 2008.

Data for this bulletin was collated and analysed as part of the successful Mackay Safe Communities redesignation process in November 2010.

Method

QISU data is collected at triage in participating emergency departments (ED) throughout Queensland. Overall, these data are representative of approximately one-quarter of emergency presentations in Queensland. There are several QISU collecting hospitals within the Mackay regional council area: Mackay Base, Mater Mackay and Sarina. Data from these hospitals were extracted from the main database and analysed for the period January to December 2009.

HOSPITALS

• *Atherton*	• *Clermont*	• *Moranbah*	• *Proserpine*	• *Queen Elizabeth II*	• *Logan*	• *Mackay Base*	• *Mount Isa*	
• *Mareeba*	• *Sarina*	• *Mackay Mater*	• *Dysart*	• *Innisfail*	• *Robina*	• *Royal Children's*	• *Mater Children's*	
• *Bundaberg*	• *Marybourgh*	• *Warwick*	• *Collinsville*	• *Yeppoon*	• *Gatton*	• *Tully*	• *Cherbourg*	

I SSN 1442-1917

QISU is funded by Queensland Health with the support of the Mater Health Service, Brisbane

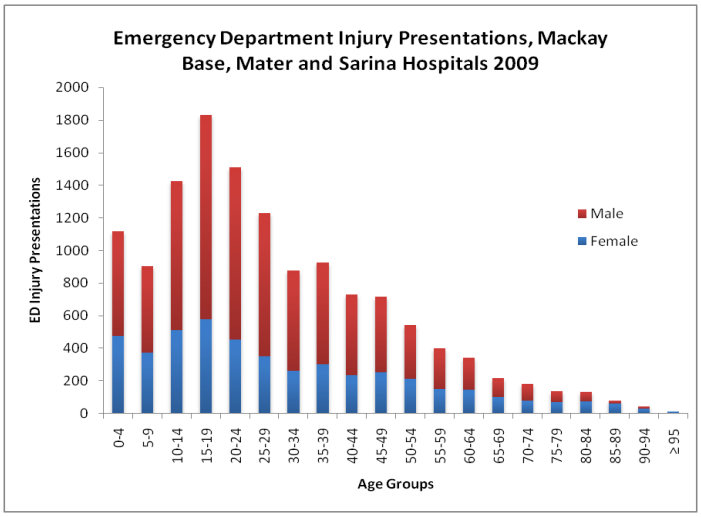
Results

There were a total of 13,364 injury presentations to EDs within the Mackay council region in 2009, averaging 37 presentations per day between the three sites. The majority of presentations were to Mackay Base hospital (10,871 or 81%), followed by 1,555 presentations to Sarina hospital (12%) and 938 to Mater Mackay Hospital (7%). Overall, 1304/ 13,364 or 10% of presentations required admission.

Age and Gender

The overall male to female ratio was 1.8: 1 (8616: male: 4743 female presentations). The peak age group for injury presentation was 15 to 19 years, accounting for 1829 presentations and comprising 14% of all presentations during the study period. (Graph 1) Two thirds of children in this group were male (1249 or 68%). There was a smaller peak in injury presentations for children aged between 0 and 4 years (1117, or 8% of all presentations). Males made up 57% of injury presentations in this age group (639/ 1117).

Graph 1. Emergency Department Injury Presentations, Mackay Base, Mater and Sarina Hospitals 2009



Assault/ Self harm

There were 622 presentations for assault during the study period accounting for 5% of injury presentations overall. Three quarters of presentations were male (464/ 622). The peak age for assault presentations was between 15 and 24 years of age, with 125 presentations in the 15 to 19 year age group and 126 presentations in the 20 to 24 year age group. (Graph 2) However, assault as a proportion of all injury presentations in each age group was more common in the 20 to 24 year age group (8.3% of all injury presentations for that age group), followed by the 25 to 29 year age group (7.7%). Although more males presented following assault than females with a male to female ratio of 3:1, the ratio was reversed (1:3) in the extreme age groups, 0 to 4 years and over 70 years.

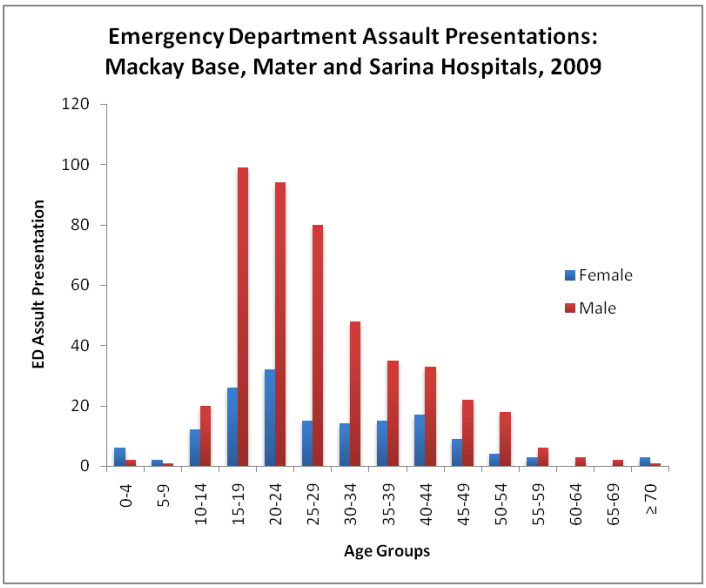
The most common place to sustain an assault related injury was at home (40% in females and 23% in males), a trade or service area (20% in males and 10% in females) followed by the street (17% in males, 9% in females). Twenty-three percent of assaults in females were the result of domestic abuse.

The most common injury sustained due to an assault was an injury to the face (175/ 622 or 28%) followed by the head (167/622 or 27%).

Sexual assault accounted for 9 presentations over the year studied, 7 females and 2 males. The 2 males were aged between 25 and 40 years of age. The female's ages ranged between 4 and 35 years of age.

There were 265 reports of self-harm accounting for 2% of all injury presentations. There was a female predominance in this group with a male to female ration of 1:1.7 (98 male: 167 female). Young females aged 15 to 30 years were particularly vulnerable, accounting for 40% of all injuries as a result of self-harm. The most common external cause associated with self harm was poisoning (49%) and cutting piercing object (38%).

Graph 2. Emergency Department Assault Presentations: Mackay Base, Mater and Sarina Hospitals, 2009



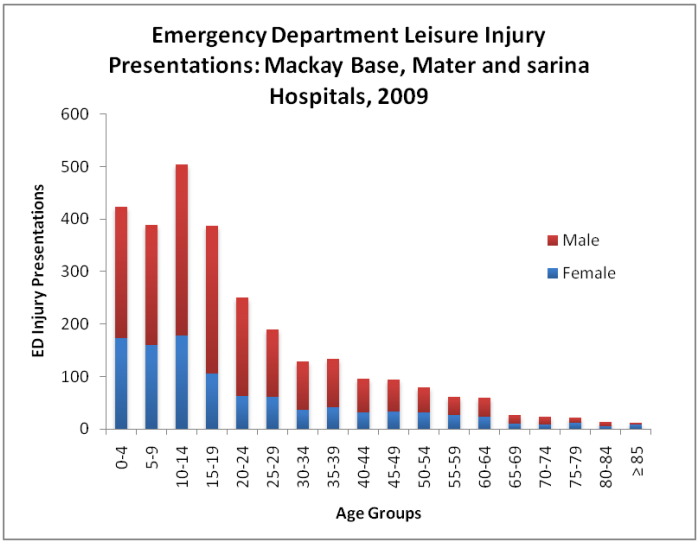
Leisure

There were 2894 injury presentations associated with leisure activity. Sixty five percent or 1884 were male, with an overall male to female ratio of 1.9: 1. More than half of the leisure related injury presentations (59%) occurred in people aged less than 20 years. (Graph 3)

Within this group, sporting activities accounted for 1,222/ 2894 or 42% of leisure related injury reports. The peak incidence was in the 15 to 24 age group, accounting for 54% of sport-related injuries. In males, leading sports associated with injury included: football (rugby league -

23%, unspecified football code - 21%, soccer – 7%, rugby union – 5%, Australian rules – 4%), motor-cross (8%) and trail-bike riding (4%). In females leading sports included: netball (15%), soccer (13%) and other football codes (15%). The most commonly identified major injury factors associated with leisure related injuries were person (286/ 2894 or 10%), sporting equipment (192/ 2894 or 7%) and motorbikes/ ATVs (169/ 2894 or 6%).

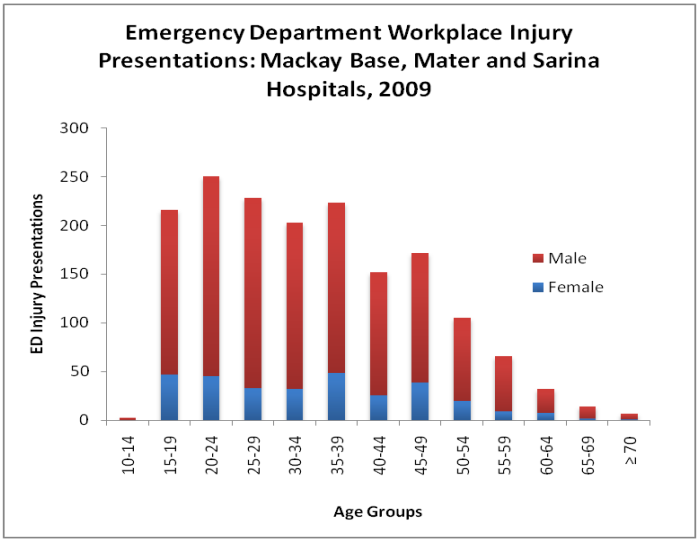
Graph 3. Emergency Department Leisure Injury Presentations: Mackay Base, Mater and Sarina Hospitals, 2009



Occupational

Occupational injuries accounted for 1671 presentations (1671/13,364 or 13% of all injuries). There was a marked male predominance with a male to female ratio of 4.4:1 (1360 male: 311 female). (Graph 4) Leading industries associated with injury presentations include: construction (21%), manufacturing (15%), transport (10%), hospitality (9%), mining (9%), agriculture (7%) and health (6%). Teenagers and young adults (15 to 24 years) account for 28% of all occupational injuries (466/1671).

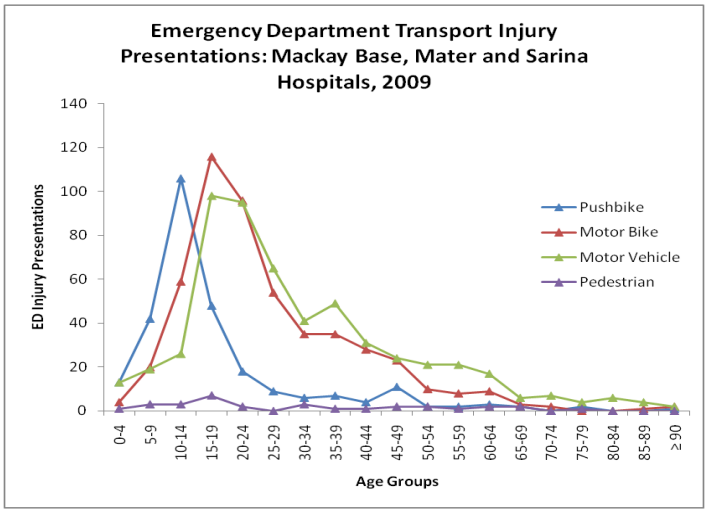
Graph 4. Emergency Department Workplace Injury Presentations: Mackay Base, Mater and Sarina Hospitals, 2009



Farm Injuries

Injuries on farms accounted for 208 presentations during the study period (2% of all injuries). The peak age groups for farm related injury were 15 to 19 years and 45 to 49 years. Just over one half of these injuries were sustained during work (110/208 or 53%). The commonest external causes associated with occupational farm injury were collision with object, machinery and horse related. The most common external causes associated with non-occupational farm related injury were motor bike, horse related and other animal.

Graph 5. Emergency Department Transport Injury Presentations: Mackay Base, Mater and Sarina Hospitals, 2009



Transport

There were 1412 presentations due to transport related injuries. The majority of injuries were associated with motor vehicle occupancy (548/1412 or 39%) followed by motor bike/ ATV injuries (505/ 1412 or 36%). Pushbike injuries accounted for 276 presentations (20%), other motorised vehicles 35, pedestrians 32 and boat related injuries 16. (Graph 5)

Whilst the majority of motor vehicle related injuries occurred on road (90%), the majority of motor bike/ ATV related injuries occurred off road (70%). This proportion was even higher for other motorised vehicles (89%).

The peak age group for motor vehicle and motor bike/ ATV related injuries was 15 to 19 years. The peak age group for push bike related injuries was 10 to 14 years.

There was a male predominance of transport related injuries (992/1412 or 70%) or a male to female ratio of 2.4:1. The majority of male transport related injuries were due to motor bike/ ATV injuries (437/ 992 or 44%), followed by motor vehicle related injuries (276/ 992 or 28%) then push bike related injuries (222/992 or 22%). Of the 437 male motor bike/ ATV related injuries, 426 were driving. Similarly of the

276 male motor vehicle related injury presentations, 200 (72%) were driving and 76 were passengers.

For females presenting following motor vehicle related injuries, 65% or 176/272 were driving. There were 68 female presentations following motor bike/ ATV related injuries, 64 or 94% were driving.

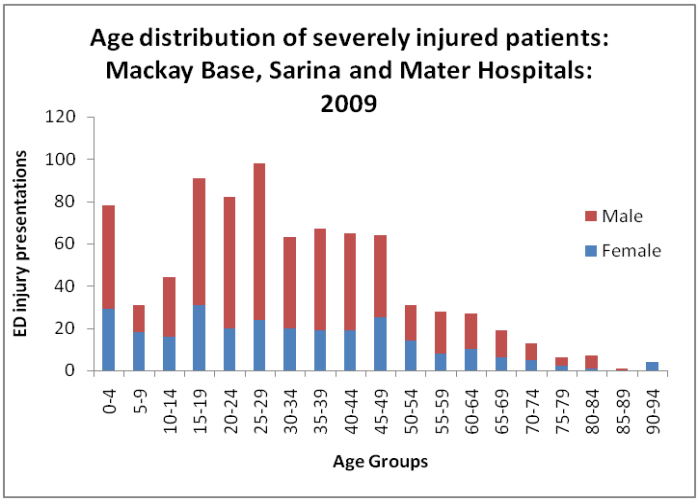
For the pedestrian injuries, the majority were due to motor vehicles (23/ 32) Five children aged 2,5,7,11 and 12 years of age experienced low speed vehicle run over injuries.

Golf buggy injuries accounted for 9 of the 35 other motorised vehicle injury presentations. Six of these presentations were on road injuries from island resorts and 4 of these were due to buggy rollover injuries.

Senior Injuries

There were 809 ED injury presentations in seniors (aged 65 years or older) accounting for 6% of all injury presentations. However seniors were more likely to require admission (26% admission rate, compared with the overall injury admission rate of 10%). More than half of these injuries occurred at home (52%), while 7% occurred on a public road and 7% occurred in a residential institution. Half of these injuries (50%) occurred as a result of a fall. Only 1% of injuries amongst seniors occurred as a result of violence.

Graph 6. Age distribution of severely injured patients: Mackay Base, Mater and Sarina Hospitals, 2009



Severe Injuries

Severe injuries (triage category 1 and 2) accounted for 819/ 13,364 or 6% of all injury presentations. (Graph 6) Sixty percent of presentations with severe injuries were admitted. There were 2 age peaks in the presentation of severe injuries, < 5 years of age (78/819 or 10% of severe injuries) and between 25 and 29 years (98/819 or 12%). There was a male predominance of 2:1 (548 male: 271 female). The most common external cause associated with severe injury presentations for all ages was motor vehicle (129/ 819 or 16%), drug poisoning (85/ 819 or 10%), and motor bike driver (82/ 819 or 10%). For children under the age of 4 years, poisoning (drug or other substance) accounted for one quarter of severe injury presentations in that age group (20/78), followed by falls (17/78 or 22%). For people over 65 years of age, the most common external cause associated with severe injury was a fall and a motor vehicle.

Discussion

The Safe Communities model of injury prevention and safety promotion was developed in Sweden in the 1960's.

The model aims to understand injury and assist prevention strategists to intervene at a community level, by involving the community in finding its own solutions. It aims to be a catalyst for environmental, structural, sociological and political change that empowers the community, and ultimately the individuals within the community, to change their environment and their behaviours in order to reduce the risk of injury and increase the perception of safety.

Communities may apply for designation through a Certifying Centre of the International Safe Communities Network. Applications are assessed against 6 indicators that seek to promote best practice in community safety promotion:

1. An infrastructure based on partnership and collaborations, governed by a cross-sectional group that is responsible for safety promotion in their community.
2. Long-term, sustainable programmes covering all ages and sexes, environments, and situations.
3. Programmes that target high-risk groups and environments, and programmes that promote safety for vulnerable groups.
4. Programmes that document the frequency and causes of injuries.
5. Evaluation measures to assess programmes, processes and effects of changes.
6. Ongoing participation in national and international Safe Communities networks.

If the community's application is considered to meet the criteria, the Certifying Centre recommends to the WHO Collaborating Centre for Community Safety Promotion (based at the Karolinska Institute in Stockholm, Sweden) that the Community be designated and accepted into the International Safe Community Network. These demonstration communities provide a model for other communities who may attempt to establish their own community safety programme.

However, the Safe Community approach is more a process than a programme and designation more a commitment to the ongoing process of becoming a Safe Community, than a certification of what the community has achieved at the time of designation.

There are currently 186 active International Safe Communities accredited by the WHO Collaborating Centre for Community Safety Promotion, and fourteen of these are in Australia; seven in Queensland (Mackay, Townsville, Mt Isa, Cairns, Woodlands, Varsity Lakes and Springfield Lakes).

Since its inception, Mackay Safe Communities has had at its core a partnership group whose functions have adapted to suit the needs of the network. Originally known as the Project Management Team, as Working Groups matured and less "project management" was necessary, the "governing" group reviewed its purpose and identity. In 2006 the Project Management Team became the Coordinating Committee, and in recent years the committee has evolved into the Network Support Group. Over the years, too, the meeting frequency of the Network Support Group has been adjusted to suit the needs of the network, with a model of monthly meetings currently in place.

The Network Support Group has continued to strive to increase community awareness of injury as a preventable health issue; promote community ownership of, and involvement in, the Safe Communities approach; and maintain Mackay's accreditation status. Activities undertaken between 2005 and 2010 include arranging events such as Community Safety Forums, advocacy on safety issues and sharing information with the Mackay community (e.g. Quarterly Reports, media releases).

The Mackay Safe Communities network has a number of working groups that meet to share knowledge, experience and explore solutions to local injury issues. **Working groups associated with Mackay Safe Communities include:**

* The Mackay Road Accident Action Group (RAAG)
* Two Child Injury Prevention Groups (ChIP Mackay and ChIP Sarina)
* The Occupational Health and Safety Group
* The Healthy Aging Reference Group
* The Rural Safety Working Group
* Citysafe Mackay (Violence Prevention in the city heart)

These groups pull together a range of participants from diverse backgrounds. See Figure 1.

Figure 1.

These organisations and individuals are involved in a range of complementary safety activities/ programmes across the Mackay Regional Council area:

* Mackay Base Hospital Falls Prevention Committee
* Mackay Physical Activity Reference Group
* Local Disaster Management Group
* Mackay District Disaster Management Group
* Mackay Whitsunday Regional Roads Group
* Equitable Access Advisory Committee
* Regional Development Road Accident Action Committee
* Traffic, Regulated Parking and Bicycle Advisory Committee
* School Based Youth Drive Alive program
* CHOICES Pre-Schoolies Week Initiative
* School Crossing Supervisor Scheme
* Skipper program
* Barlink committee
* Safe Walking and Pedaling Program
* Safe School Travel committees
* Safe School Bus Route audits
* Home Link program
* Education programs/ sessions eg:
    - Cyber bulling
    - Who's talking to your kids (internet safety advice for parents)
    - Seniors online
    - Drug Action Week
    - Paul Stanley/ One Punch Can Kill
    - Stay On Your Feet Workshops

The Queensland Injury Surveillance Unit has had a long-term relationship with the Mackay Safe Communities project in collating and analysing data collected in the region. This data is available to the Mackay community to identify injury risks and vulnerable populations within the community. Injury surveillance data from Mackay (together with other QISU collecting sites) has in turn been used to inform broader injury prevention strategies at state and national level. Injury surveillance data is collected at triage, by nursing staff within the emergency department. This task requires considerable staff commitment in a climate of increasing work pressure.

This bulletin profiles the injury burden of the Mackay Council community. Many of the injury issues identified are common to other communities within Queensland. Others are specific to or more prevalent in the Mackay region. Local health practitioners have been able to identify specific injuries that are frequent and or severe: off-road motor bike and ATV related injuries as well as island resort on-road golf buggy related injuries. These injuries are the subject of local research, and QISU data analysis has been used to quantify and describe these injuries.

Analysis of the Mackay council injury data by age and injury mechanism allows more effective targeting of injury prevention strategies by the relevant working groups. Community perception of injury and safety are not always in keeping with the evidence. For example, there has been considerable media attention given Queensland-wide to assault related injury, particularly associated with alcohol related violence within central business district (CBD) entertainment areas. In the media, these injuries are typically characterised by "glassing" assaults between young males who are drinking in CBD venues. This is the very public face of interpersonal violence. However, the injury surveillance data from Mackay region and other QISU sites within Queensland shows that despite media reporting, the majority of injuries due to assault occur at home, followed by an entertainment venue and then the street. This suggests that strategies to address injuries due to interpersonal violence may need to examine factors beyond CBD licensee management and policing strategies. Although more males present following an assault (three quarters were male), females were much more likely to sustain assault related injuries at home. These women may be less likely to present to the ED, and it is likely that the ED based estimate of female assault victims is a significant underestimate of the true number.

Occupational injury remains a significant burden on the male population in the Mackay region, with more than four times as many males as females presenting following occupational injury. In part this reflects the gender difference in employment, with males more likely to work in higher risk industries. However, this male susceptibility to injury holds true in other injury areas, so it is likely that there are several issues at play. This burden is borne by the youngest employees. Recognising male injury susceptibility in high risk occupational settings (construction, mining) is an important component in developing safety solutions. In contrast, farm related injuries affect predominantly both young (15 to 19 years) and older people (45 to 49 years). Only one half of the farm related injuries analysed in these data were occupational. This highlights the mixed injury prevention strategies required for families living on what is essentially a work site.

Conclusion

The Queensland Injury Surveillance Unit has had a long association with the Safe Communities movement in the Mackay region. This shared safety promotion work is underpinned by strong commitment from health services staff, who collect injury surveillance data in the Emergency Departments. This data informs both local safety initiatives, as well as injury prevention strategies and policies at state and national level.

Director	Dr Ruth Barker	**Manager QISU and QSCSC**	Michelle Hillcoat-Schardt
Assistant Manager	Linda Horth	**QISU Fellow**	Dr Mohan Swaminathan
Medical Staff	Dr Ruth Barker -Staff Specialist, ED Mater Children's Hospital	**Data/Web/IT Projects Officer**	Goshad Nand
Hospital Project Coordinator	Michelle Hillcoat-Schardt	**Administration Officer**	Desi Castillo
Coding Officers	Patricia Smith, Linda Horth, Desi Castillo, Nikki Nugent	**Bulletin Layout**	Patricia Smith

QISU CONTACT DETAILS:

Mater Health Services
Level 1 Whitty Building
Raymond Terrace,
South Brisbane QLD 4101
Phone: 07 3163 8569
Facsimile: 07 3163 1684
Website: www.qisu.org.au
Email: mail@qisu.org.au