



## General

For the purposes of this document, Bariatric means any person whose weight or physical dimensions exceed the capability of standard equipment in use by the Ambulance Service of NSW. The number of morbidly obese patients requiring pre-hospital or inter-hospital transport and clinical care is growing exponentially.

The timescale involved in organising and effecting such transports is often long. Fortunately it is rarely necessary to urgently move such patients for care that cannot be provided by either the referring hospital or the retrieval team.

The actual weight, height, and width of the patient are significant factors affecting the choice of vehicle for the transport. Often if the wrong vehicle is sent the whole mission needs to begin again with the correct vehicle. The stretcher may be strong enough but not wide enough to carry the patient. The loaded stretcher may sit against the side of the vehicle further reducing the available width. The Megalift is the widest stretcher by quite a margin.

Bariatric transfers provide logistic and clinical challenges. These challenges may not be apparent to referring clinicians; thus an accurate weight must be requested for all patients to allow for early identification of the bariatric patient. The referring hospital should make all efforts to actually weigh the patient. If this not possible, then contacting the GP or a family member may reveal a recent weight. Ask the referring hospital to measure the maximum width (shoulders and hips) – does the patient fit on a single hospital bed or are two beds required (or a special bed)? Alternatively ask for an email of a digital photo that includes the patient and an object of known dimensions. If a patient's weight is given as 100kg or more the bariatric sizing chart must be sent to the referring hospital, and completed and returned as soon as possible.

The information from the bariatric sizing chart must then be shared with the crew of the retrieval vehicle. For medical retrieval involving GSA-HEMS helicopters, the paramedic as well as the doctor must be included in the conference call with the referring facility. This is to ensure logistic issues are adequately addressed at an operational level.

The Ambulance Service of NSW SOP 2012-002 "Transport of Bariatric Patients" should be referred to. In addition, the NSW Department of Health has a guideline titled "OH&S Issues Associated with Management of Bariatric Patients" which is useful reading [http://www.health.nsw.gov.au/policies/gl/2005/GL2005\\_070.html](http://www.health.nsw.gov.au/policies/gl/2005/GL2005_070.html)

The vehicle utilised should be carefully chosen to take account of all relevant clinical and operational factors. Senior ambulance, medical and aviation staff should all be consulted early in the process to facilitate planning.



## **Helicopter:**

A conference call via MRU involving the proposed retrieval team Doctor **and** paramedic should occur at the commencement of the tasking. This is a **critical** step, to identify and resolve the logistic issues of the mission. This should occur as early as possible, recognising that on occasion there may be logistic factors; for eg, it is time critical to get the retrieval team to the patient to assist with resuscitation, or if the proposed crew is not immediately available (on a prior mission, or yet to commence duty).

The table that follows is a guide. Individual cases, particularly those close to the listed figures, should be discussed with the individual service.

GSA-HEMS specify – road or helicopter bariatric transfers must conference the retrieval paramedic and doctor in the initial call if overweight or at or beyond the width of the stretcher. Involve SRC if logistic issues identified.

For all other retrieval services, if possible, conferencing the retrieval doctor **and** paramedic at the commencement of planning is highly recommended.

Critical items that MUST be confirmed are:

1. ***Bariatric form completed, returned, and information shared with the retrieving team***
2. ***Weight-capable, height adjustable stretcher at each end (referral and receiving)***
3. ***“good helipad” at each end – i.e. on-site, concrete helipad, sealed path, reasonably level access from pad to hospital***
4. ***Adequate personnel at each end for loading/unloading (minimum of six, including aircrew)***
5. ***Duty hours/fatigue management issues***

## **ASNSW Air Ambulance Fixed wing:**

As a guide, the table at the end of this document may be used, but should be confirmed with the relevant crews in each individual case.

A Bariatric/Special purpose(IABP/ECMO) stretcher will be coming on line soon, *only for the B350* (not B200). It is not yet on line. Its characteristics are listed in the table, but individual cases must be discussed with the flight nurse to confirm details.

## **RFDS Dubbo FW & RFDS Broken Hill FW:**

Contact RFDS to discuss the individual case.

As a guide, the table at the end of this document may be used, but should be confirmed with the relevant crews in each individual case. The principles in regard to the practical patient weight limit are similar to the ASNSW Air ambulance fixed wings.



## Road:

There are currently five 5 NSW MPV vehicles:

- 3 of these ("Old" MPVs) use a Hino Dutro Truck with a hydraulic rear lifting loading platform and with Megalift Stretchers with 350kg max patient weight
- Two ("new" MPVs) use an electric assist DHS Powerlift 600+" stretcher with height adjustable hydraulic loading. The maximum patient weight is 550kg.
- The ACT MPV uses the DHS power lift 600+, SWL 550kg, with height adjustable hydraulic loading. It is a single cab vehicle with long range fuel tanks.

## Notes:

1. NSWAS is rolling out up to nine new MPVs in 2013, and it is likely one of these will be at Bankstown base.
2. A conference call via MRU involving a) the retrieval team Doctor and paramedic, and b) the *actual MPV crew* must occur at the commencement of the tasking. This is a critical step, to avoid miscommunication in regard to timing of the retrieval team & MPV team, and to identify and resolve other logistics. Note the logistic considerations (time critical, team availability) in the discussion of helicopter missions above.
3. A "new" MPV with a 600+ stretcher must be used for all bariatric road transfers, including bariatric ECMO transfers, except in exceptional circumstances. These vehicles have a means of securing the retrieval monitor/ventilator which is not present on the old-style MPV vehicles
4. An "old" MPV should be used if there is a bariatric IABP transfer (or if an IABP is in use during a bariatric ECMO transfer). The "new" MPV doesn't have a balloon pump lifter, and there are thus manual handling issues.
5. If there is a road leg at the end of a helicopter bariatric transfer (this should be avoided if at all possible). If, for example, a destination of St Vincent's Hospital is unavoidable, then:
  - a. Vehicle needs to be a "new" MPV with height adjustable stretcher 600PLS
  - b. The landing area at Victoria Barracks is not suitable (grass). The aircraft should land at Bankstown, and be unloaded at the hangar. There is a height-adjustable trolley on base. The patient will then need to be hover-matted across to the Bariatric truck stretcher, and then transported to the hospital. (this process would also apply to cases where there are issues getting the aircraft to the designated hospital due to weather or fuel loads).
6. Queensland, the ACT, and possibly Victoria, have MPV vehicles that may be utilised in cross/near border work, although due to equipment familiarity issues & possibly lack of formal MOU's, that should be avoided except in exceptional circumstances. The ACT MPV is based on the NSWAS dual cab Mercedes, however, it is a single cab vehicle utilizing the DHS PLS 600+ bariatric stretcher (powder coated steel), not carbon fibre as is the case with the latest generation Queensland and Western Australian vehicles. The stretcher could potentially be transferred between vehicles subject to vehicle/stretcher charging connections.

The commonly used ASNSW road stretches for pre-hospital work have weight limits of 200kg (DHS 302 stretchers) and 220kg (DHS 304 stretchers). The 304 stretcher is progressively replacing the 302 and older De Havilland (160kg) stretchers. The actual patient weight limit will depend on other factors, including weight of bridge and medical equipment carried. Because of patient width constraints, although these stretchers are rated to these weights, patients over 160kg will generally require a MPV response.



**TABLE: Stretcher Capacity Guidelines**

**This table is a guide. If a patient is close to specified dimensions or weights please consult medical crew in first**

Vehicle	Location	Stretcher Length	Stretcher Width	Stretcher SWL	Bridge Weight	Max. Patient Weight	MegaLift Capable	MegaLift Length	MegaLift Pt Width	MegaLift SWL
Ambulance Vehicle		1.93m	54cm	200kg (302) 220kg (304-5)	N/A	150kg	N			
Retrieval Vehicle	Bankstown	1.87m	58cm	160kg	25kg	135kg	N			
Bariatric MPV Vehicle	Sydney				25kg		Y <sup>1</sup>	2.00m	85cm	500kg
	Newcastle				25kg		Y <sup>1</sup>	2.00m	85cm	500kg
	Canberra				22kg		Y <sup>1</sup>	2.00m	85cm	500kg
Fixed Wing - B200	Mascot	1.84m 2.01m ext	47cm <sup>2</sup>	160kg	20-30kg	160kg <sup>3</sup>	N			
	Dubbo	1.85m	65cm <sup>4</sup>	180kg	20-30kg	180kg <sup>1</sup>	N			
Fixed Wing - B350	Mascot	1.84m	47cm	160kg	min20kg max30kg	160kg	Not yet Online	1.84m 2.07m ext	64cm	260kg <sup>5</sup>
Rotary Wing - Agusta A109	CareFlight (Westmead)	1.84m	46cm	120kg	10kg	110kg	N			



Vehicle	Location	Stretcher Length	Stretcher Width	Stretcher SWL	Bridge Weight	Max. Patient Weight	MegaLift Capable	MegaLift Length	MegaLift Pt Width	MegaLift SWL
Rotary Wing - Agusta AW139	Bankstown	1.87m	57cm	160kg	25kg	135kg	Y <sup>1</sup>	1.90m	N/A	200kg
	Wollongong	1.87m	57cm	160kg	25kg	135kg	Y <sup>1</sup>	1.90m	N/A	200kg
Rotary Wing - Bell 412	Newcastle	1.80m	45cm	160kg	35kg	125kg	Y <sup>1</sup>	1.80m	70cm	200kg
	Canberra	1.87m	45cm	160kg	22kg	138kg	N			
Rotary Wing - BK117	Tamworth	1.90m	48cm <sup>6</sup>	160kg	35kg	125kg	N			
Rotary Wing - Dauphin N2	Lismore	1.87m	47cm	160kg	22kg	138kg	N			
Rotary Wing - Eurocopter 145	Bankstown	1.87m	57cm	160kg	25kg	135kg	N			
	Orange	1.87m	57cm	160kg	25kg	135kg	N			

1. Discuss with Flight Nurse / Retrieval Paramedic at time of booking
2. Mattress width - wider patient may be accommodated: discuss with Flight Nurse
3. Bridge weight not to be taken into consideration
4. Tapered to foot
5. Subtract any IABP/ECMO equipment or brackets. DO NOT subtract bridge weight
6. 42cm over legs with bridge in situ



## Guidelines for use of the Stretcher capability Table

1. The guide maximum patient weight is a **guide only**. Every case must be discussed with the proposed clinical crew (& flight crew if applicable), particularly if the patient's weight is close to the listed weight (either above or below).
2. The weights are an indicative only. If the patient is close to the specified weights or dimensions, consult with the medical crew in the first instance.
3. Stretcher SWL is the total weight. i.e. patient weight + any required equipment (consider bridge weight as appropriate). The fixed wings are an exception to this – discuss with the flight nurse in individual cases.
4. It is important to consider and discuss the practical patient working weight for each mission. Some examples:
  - a. While the standard ambulance stretcher SWL is listed as 220kg, it would be highly unusual for anyone to use this for a patient beyond about 150kg due to the manual handling issues involved.
  - b. The Lismore helicopter lists as SWL of 160kg, with a bridge weight of 22kg, giving a patient maximum weight of 138kg, provided there is no additional equipment added to the bridge. However, apparently it may be feasible to strap the bridge to the floor, allowing an increased patient weight.
  - c. The Tamworth SWL is 160kg, with bridge 35kg, so max patient 125kg, however, most of the time the equipment/bridge is <35kg, allowing more patient
  - d. Canberra ("SouthCare") SWL 160kg-bridge 22kg = patient 138kg.
5. For helicopter missions, remember:
  - a. Bariatric form completed, returned, and information shared with the retrieving team
  - b. Weight-capable, height adjustable stretcher at each end (referral and receiving)
  - c. 'good helipad' at each end – i.e. on-site, concrete helipad, sealed path, reasonably level access from pad to hospital
  - d. Adequate personnel at each end for loading/unloading (minimum of six, including aircrew)
  - e. Duty hours/fatigue management issues

## Appendices:

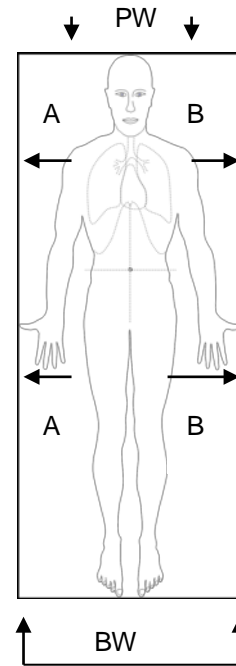
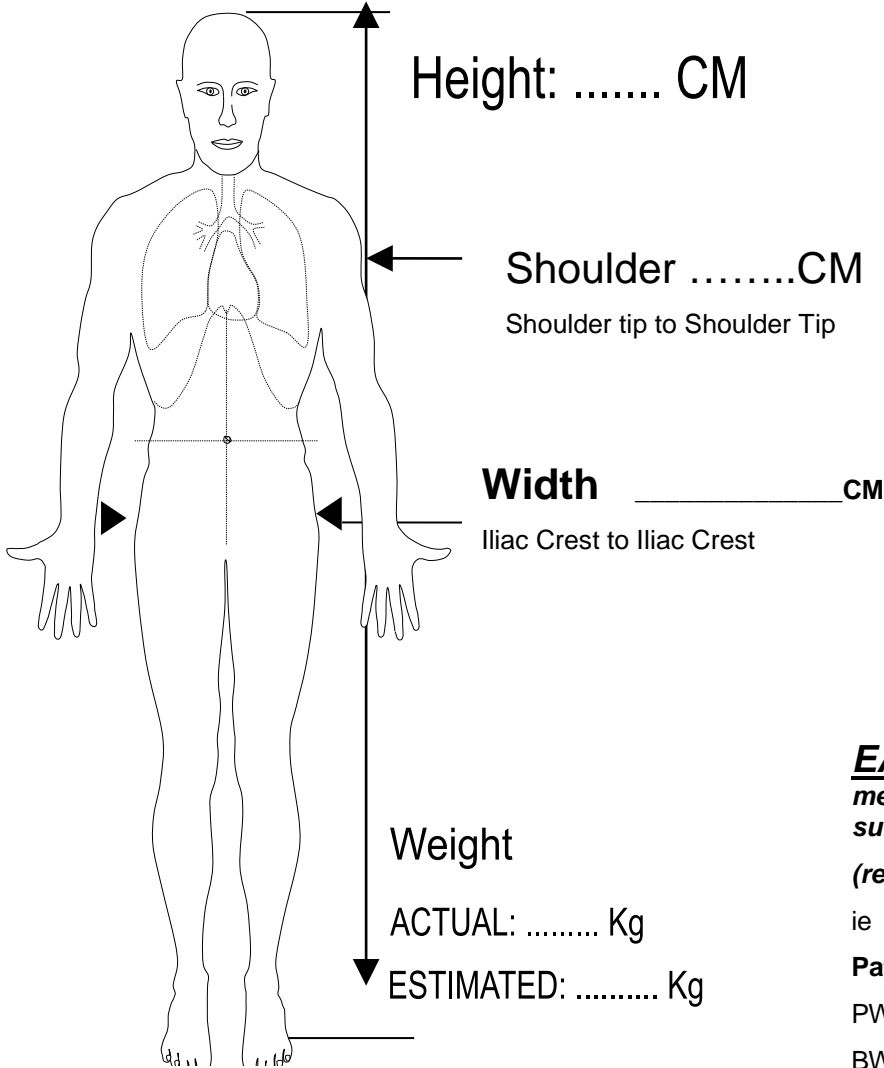
1. Bariatric Sizing Chart
2. Bankstown Base Helicopter Bariatric Flowchart (Sept 2012)
3. Bankstown Base AW139 Bariatric Logistic Checklist (Sept 2012)



## APPENDIX 1: Bariatric Sizing Chart for Aeromedical Transport

Patient Name: \_\_\_\_\_

Requesting Hospital: \_\_\_\_\_



**EASY TIP:** Measure width of bed, then measure bed edge to shoulder tip. Then subtract to obtain patient width.

(repeat for iliac crest measurement)

ie please use the following formula

$$\text{Patient Width} = \text{BW} - (\text{A} + \text{B})$$

PW = Patient Width

BW = BED Width

A = distance from edge of bed to R shoulder tip or R Iliac Crest (whichever is widest)

B = distance from edge of bed to L shoulder tip or R Iliac Crest (whichever is widest)

Please Circle

1. Height adjustable stretcher available    Yes / No
2. On Site Helicopter pad available        Yes / No
3. Sealed path from Hospital bedside to helicopter pad    Yes / No

Signed: \_\_\_\_\_

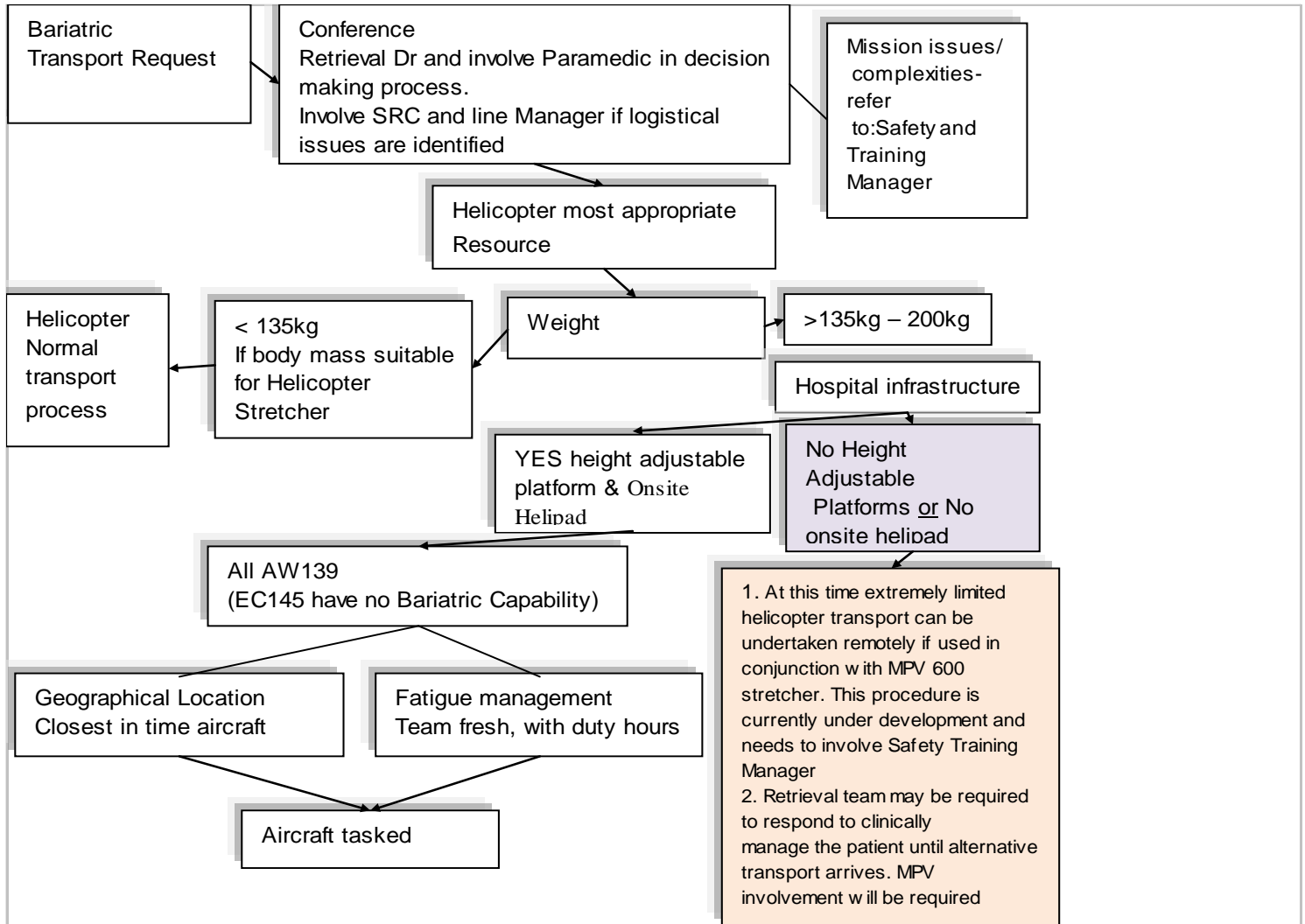
Please Fax to Aeromedical Operation Centre 0295532275

$\text{BW} - (\text{A} + \text{B})$
$\text{---} - (\text{---} + \text{---})$
$\text{---} - \text{---}$
<b>Patient widest point =</b> _____



## APPENDIX 2: Bankstown Base Helicopter Bariatric Flowchart

NB: This is provided as a guide only, as at September, 2012. There may be updates to this flowchart – it does NOT replace early conference call involving MRU & the proposed retrieval doctor and retrieval paramedic.



Maximum weight for helicopters is 200kg.





**APPENDIX 3: Bankstown Base AW139 Bariatric Logistic Checklist**

Mission Number: \_\_\_\_\_

Patient Name: \_\_\_\_\_

**YES NO INITIAL INFORMATION**

- Clinical Urgency is identified and communicated to the entire team
- Patient Body Mass Chart requested and filled out and available to Paramedic
- Patient clinically capable of transport
- Clinical requirements (additional specialised equipment, en-route treatment, posture )
- Flight Complications, weather/ altitude limitations  
"What" \_\_\_\_\_(discuss with conference group)
- Duty hour issue / or Fatigue management issues  
"What" \_\_\_\_\_(discuss with conference group)

**REFERRING HOSPITAL**

- On Site Hospital Helipad
  - Sealed path from Helipad to Hospital
  - Weight capable, height adjustable platform available
  - Adequate staff for manual handling available (min of 6 including Aircrew)
- Pilot aware of access from right door to pathway for loading

**RECEIVING HOSPITAL**

- Onsite helipad (IF NO Sydney helipad consider **THIRD STAGE TRANSFER** St Vincent's Hospital only to be undertaken See Right text box)
- Adequate path from Helipad to Hospital
- Weight capable, height adjustable platform available
- Adequate staff for manual handling available (min of 6 including Aircrew)
- Pilot aware of requirement for access from right door to pathway for unloading

**YES Equipment**

- Air transport system, (Mattress, Blower unit, Electric cord, Blower tubing)
- Megalift Base plates Head and Foot
- Ply floor
- Megalift stretcher and securing harness
- Ventilator Long Circuit 3 metre
- Oxylog 3000 plus and oxygen tubing attached and Roof Mount
- Lifepack 15
- 3x Nicki Syringe pumps and 3x pouches with snap Carabineer
- Inter-hospital bag
- 

**Possible additional clinical support considerations**

- | Yes                      | No  |
|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> Anaesthetics' available at sending hospital  |
| <input type="checkbox"/> | <input type="checkbox"/> Fibre optic scope available                  |
| <input type="checkbox"/> | <input type="checkbox"/> Retrieval Anaesthetist on shift or available |
| <input type="checkbox"/> | <input type="checkbox"/> Other specialist requirements                |

**THIRD STAGE TRANSFER** There is no onsite Helipad at ST Vincent's Hospital

Consider third stage MPV transfer from close designated helipad. (eg POW helipad to St Vincent's via MPV.)  
Due to Aviation needs, Bankstown Helicopter base may be preferred for Patient Transfer.

**THIS SHOULD ONLY BE UNDERTAKEN IF THERE IS A CLINICAL NEED FOR ST VINCENTS HOSPITAL ONLY** and due to logistical problems St Vincent's Hospital should be the last preference as the receiving Hospital