



**Resuscitation Council (UK)**

**Guidance for  
safer handling  
during  
resuscitation  
in healthcare  
settings**

**Working Group of the  
Resuscitation Council (UK)**

**November  
2009**





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Tel: 020 7388 4678 • Fax: 020 7383 0773 • E-mail: [enquiries@resus.org.uk](mailto:enquiries@resus.org.uk)  
• Website: [www.resus.org.uk](http://www.resus.org.uk)

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## Members of the Working Group

Sara Wright (Chair)	Manual Handling Trainer/Advisor *
Sally Cassar	Manual Handling Trainer/Advisor *
Zoë Hayman	Resuscitation Officer
Sarah Icton	Manual Handling Trainer/Advisor *
Ben King	Resuscitation Officer
Melissa Lovell	Manual Handling Trainer/Advisor *
Sarah Mitchell	Director, Resuscitation Council (UK)
James Pearson-Jenkins	Senior Lecturer in Adult Acute Nursing; Manual Handling Trainer/Advisor *

*\* Members of the National Back Exchange*

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Mike Betts

Gavin Chambers

Kay James

Mary Muir

Anita Rush

Sara Thomas

Clive Tracey

Executive Committee, Resuscitation Council (UK)



## Contents

Introduction	4
Background	5
Glossary of terms	7
Cardiopulmonary resuscitation on the floor	10
Cardiopulmonary resuscitation on a bed or trolley	16
Dealing with a cardiac arrest in a sitting position	21
Dealing with a cardiac arrest in a bath	25
Dealing with a cardiac arrest in a hydrotherapy pool	26
Cardiopulmonary resuscitation and the bariatric patient	28
References	30
Conflict of interest declaration	31
Useful websites	32



## Introduction

This advisory document is a revision of previous guidance from the Resuscitation Council (UK) published in *Guidance for safer handling during resuscitation in hospitals (2001)*. It is aimed at healthcare providers, resuscitation officers and manual handling advisors involved in resuscitation. It is primarily for adult patients but may be appropriate for children over 8 years. It cannot provide all the answers and is unable to cover all possible situations, nor is it intended to replace existing manual handling procedures written by hospitals, or other establishments, following full risk assessments; rather it is hoped these principles can be adapted as a resource to assist in the making of local decisions and guidelines.

### **The aims of the working group were to:**

- Identify areas of concern
- Provide realistic principles for dealing with manual handling situations which have been scored using Rapid Entire Body Assessment (REBA)<sup>1</sup> and taking into account the urgency of the cardiac arrest situation (see glossary of terms)
- Consider that each healthcare setting will have different facilities and will face different situations
- Minimise the risk to the rescuer “as far as is reasonably practicable”
- Base the recommendations on current safer practice.



## Background

Manual handling operations have been defined by the Health and Safety Executive as “*any transporting or supporting of a load (including the lifting, putting down, pushing, pulling, carrying or moving thereof) by hand or by bodily force*”.<sup>2</sup>

In 2003/04 an estimated 4.9 million working days (full day equivalent) were lost in the UK because of back pain caused or made worse by work. It has been identified that one in four nurses has taken time off as a result of back injury sustained at work.<sup>3</sup>

It is estimated that four out of five adults will experience back pain at some stage in their life.<sup>4</sup> Poor manual handling accounts for more than 52% of reported incidents in the health service.<sup>2</sup> Although many injuries to the back are the result of cumulative stress rather than from an isolated incident, careful and safe manual handling during resuscitation must be considered at all times.

Cardiorespiratory arrest is seen as the most acute medical emergency faced by healthcare providers and the speed of response is essential because delays in providing cardiopulmonary resuscitation (CPR) reduce the chance of survival. In approximately 80% of adult cases there are clinical signs of deterioration, therefore cardiorespiratory arrest is a foreseeable event.<sup>5</sup> As such, this situation should be assessed for risk and the outcome of this should lead to plans and provisions being implemented locally to handle the emergency situation safely as far as is reasonably practicable. For example, patients who are at risk of cardiac arrest should be on an appropriate bed type.

In response to the requirements laid down by the Manual Handling Operations Regulations 1992, manual handling advisors are now employed by most hospitals and healthcare settings and risk assessments are performed for most situations.<sup>2</sup> Moving and handling training is a statutory requirement under the Health and Safety at Work etc Act 1974 and expanded on in the Management of Health and Safety at Work Regulations 1992.<sup>6,7</sup> Managers and staff have to consider the working environment and plans should be in place for dealing with identified medical emergencies. The principles for moving bariatric patients are the same, however healthcare settings should have a policy which takes into account the increased risk and provision of suitable equipment. The term ‘bariatric patient’ has been used in this document to describe a patient who is overweight or obese. Resuscitation guidelines for basic and advanced life support still apply with bariatric patients. Their weight, body shape and increased tissue mass can make airway management, CPR and defibrillation technically more difficult.



A common dilemma is how to manage the patient as they collapse to the floor. When a patient collapses, the urgency of the situation may distract rescuers from using safe handling techniques. If the patient is out of reach it is unrealistic to be able to lower them in a safe manner. Most healthcare settings have developed local guidance on the management of the falling person.

Whilst this document does not address specific issues (e.g., protection of the cervical spine), before starting the resuscitation attempt the rescuer must rapidly and correctly assess the risks to both the patient and the rescuer. This is the first action in the sequence of events for basic life support (BLS).<sup>8</sup> The rescuer must take into account their own individual capability and experience, and the weight and build of the patient before handling them. Environmental factors such as space must also be rapidly assessed. Care must be taken to avoid any injury to the rescuer during the resuscitation procedure as this may prevent them performing effective CPR. Within the clinical setting it is likely that additional rescuers will arrive at the scene rapidly and it may be more appropriate to wait for such help rather than risk personal injury. In the community, lone workers should refer to their local policies/guidelines.

Low-friction material devices, e.g., sliding sheets are now widely available and used commonly. They are especially useful for turning or moving a patient. These should be readily available and it is recommended that they be kept in strategic areas within the hospital and other healthcare settings. If space permits they should be kept on, or next to, the emergency resuscitation trolley, or at the nearest location to this which is easily identifiable.

Performing chest compressions is physically demanding and may exhaust or strain the rescuer. Another rescuer should take over CPR about every two minutes to prevent fatigue.<sup>8</sup>

This document does not address mechanical hoists because there is a plethora of appliances being used in practice. There is a statutory duty under the Provision and Use of Work Equipment Regulations 1998 (PUWER), to train employees in the use of work equipment and more specifically the Lifting Operations and Lifting Equipment Regulations 1998 (LOLER) place a duty on employers to ensure that every lifting operation is planned and prepared properly and carried out by competent persons.<sup>9, 10</sup> The moving and handling of resuscitation training equipment has also not been addressed. This is beyond the scope of the working group and is an issue that should be dealt with locally following full risk assessment. Similarly, local policies should be established for the unique situation of the MRI scanner. Generic handling procedures, such as how to log-roll a patient and insertion of sliding sheets should be addressed in staff training sessions. If you are unfamiliar with these procedures, seek appropriate training and advice. This document only pertains to safer handling techniques and methods that are specific to CPR.





## Glossary of terms

### Kneeling positions:

**High Kneeling**  
[REBA score 2]



**Half Kneeling**  
[REBA score 2]

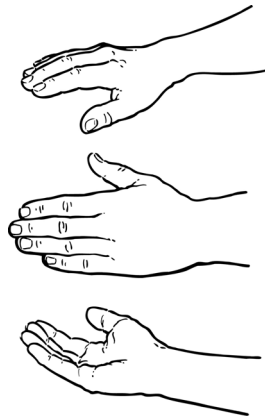


**Low Kneeling**  
[REBA score 2]



### Neutral position of the wrist:

No flexion, extension or twisting

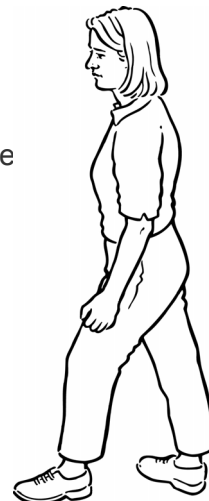


**Innermost:** Nearest to the patient

**Outermost:** Furthest from the patient

**Walk stance:**  
[REBA score 1]

An example of  
a dynamic stable  
base



### Rapid entire body assessment (REBA):

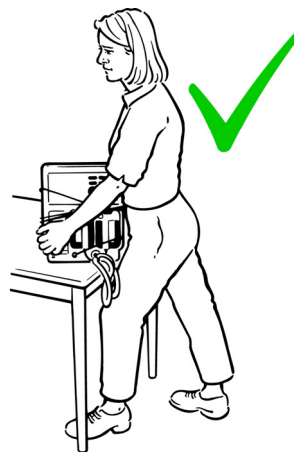
A tool designed to assess postures for risk of work related musculoskeletal disorders.

REBA score	Risk
1	Negligible risk
2 - 3	Low risk
4 - 7	Medium risk
8 - 10	High risk
11 - 15	Very high risk

### Reasonably practicable duties:

It is a statutory duty that the employer must take safety precautions 'so far as is reasonably practicable'.<sup>6</sup> In this instance, the employer has to weigh up the risks involved in a particular situation against the costs of removing or reducing the risk.

## Aide memoire to safer handling



- good posture
- straight spine
- stable dynamic base
- close to load

[REBA score 4]



- bad posture
- C-shaped spine
- unstable base
- reaching and twisting

[REBA score 9]



## Cardiopulmonary resuscitation on the floor

If a patient is found collapsed on the floor, CPR should be carried out on the floor. Start CPR as quickly as possible and try to provide the best quality CPR, particularly chest compressions, that is possible in the circumstances. Do not move the patient unless there is inherent danger to the patient or rescuers in that location.

If the patient has collapsed in a public area (such as a waiting room) consider the use of screens to provide some privacy. Alternatively, ask the other patients and members of the public to leave the area.

If access to the patient is restricted, where possible, move the patient. If it cannot be moved quickly and safely it may be necessary to slide the patient horizontally across the floor to an area that is less restricted. Use sliding sheets to achieve this to reduce the risk to the rescuers. Poor access to the patient may result in the rescuers having to twist and bend awkwardly and this may impair the quality of CPR or risk potential injury to the rescuer.



[REBA score 4]

## Chest compressions

It is important that the rescuer minimises twisting their spine and applies force vertically down from their shoulders. This reduces the risk of injury and makes compressions more effective.

- Kneel in the high kneeling position with your knees shoulder-width apart at the side of the patient's chest
- Position your shoulders directly above the patient's chest and keep your arms straight
- The force of compressions should come from flexing your hips not from bending the arms
- With hands kept in position, allow the chest to recoil to its fullest extent before starting the next compression.



## Airway management and ventilation

It is important there is sufficient space around the patient to enable rescuers to manage the airway effectively. Access from behind the head of the patient, as well as from the side, is required.

### Bag-mask ventilation

The two-person technique for bag-mask ventilation is preferable.<sup>5</sup>

- Kneel behind the patient's head with your knees shoulder-width apart
- Rest back to sit on your heels in the low kneeling position
- Keep your back as upright as possible and keep your arms straight while holding the mask on the patient's face.

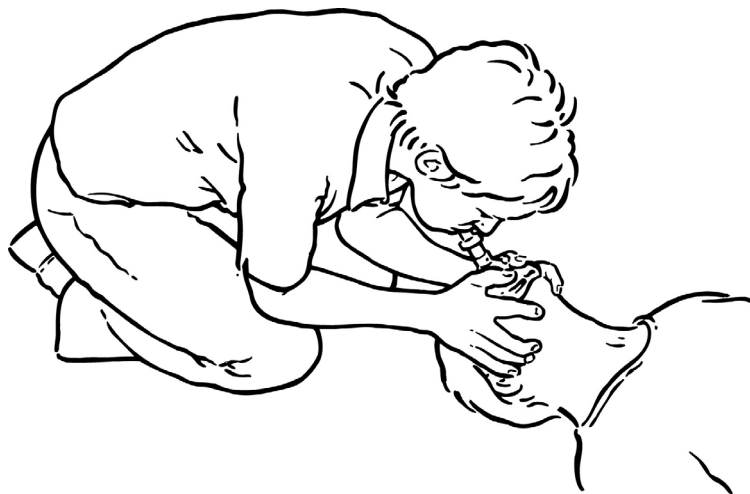


### Bag-mask ventilation (continued)



### Mouth-to-mask

- Kneel behind the patient's head with your knees shoulder-width apart
- Rest back to sit on your heels in the low kneeling position
- Bend forwards from your hips and lean down to blow into the mask
- Resting your elbows on your legs may offer some support
- Using a pocket mask may be less comfortable for the rescuer compared with bag-mask ventilation.





## Airway devices

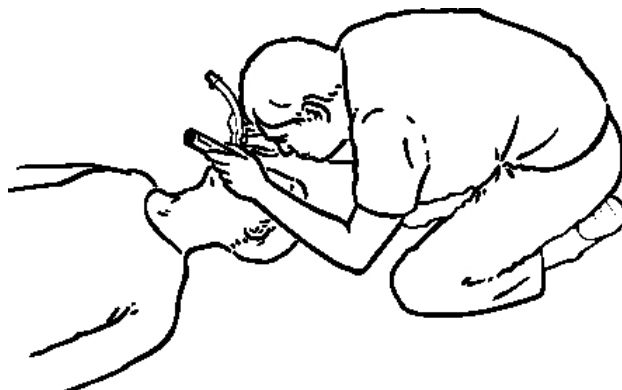
Supraglottic airway devices (e.g., laryngeal mask airway)

- Kneel behind the patient's head with your knees shoulder-width apart
- Rest back to sit on your heels in the low kneeling position
- Place one hand behind the patient's head to keep it tilted back
- During airway insertion lean forward slightly from your hips.



## Tracheal intubation

- Kneel behind the patient's head with your knees shoulder-width apart
- It will be necessary to bend forward considerably, from the hips, in order to see the vocal cords
- Resting your elbows on the floor or widening your knees may provide more stability
- Intubation will require considerably more bending forward than using any of the supraglottic airway devices
- No intubation attempt should take longer than 30 seconds.<sup>5</sup>



## Following resuscitation

The safest method of transfer is to use a hoist with a stretcher attachment that enables direct lifting from the floor because it keeps the patient horizontal. If this is not available, a hoist and sling may be used as long as this enables direct lifting from the floor and the following criteria are met:

- The hoist sling must provide adequate support to the patient's head and trunk
- The hoist sling is inserted underneath the patient using either a log-roll technique or by using sliding sheets if the patient is too unstable to be rolled
- During hoisting care is taken to ensure the patient's trunk and head remain as horizontal as possible. A good team approach is vital when managing this transfer to ensure the safety and comfort of the patient
- If the patient re-arrests whilst in the hoist, either continue the transfer onto the bed or trolley or lower them back to the floor depending on which is the quickest or easiest
- Always use mechanical lifting devices when lifting bariatric patients.

Try to keep the patient horizontal. A head down position increases the risk of regurgitation and makes ventilation more difficult.

### Extra Caution!

The use of the stretcher attachment on a hoist may lower the hoists overall safe working load. Always check the safe working load of any attachments and never exceed it.

### Alternative mechanical floor lifting devices

If a hoist is not available then the patient can be log rolled onto a solid flat surface (e.g., a scoop stretcher) and raised with a mechanical lifting cushion. The patient must be kept in a horizontal position; therefore sufficient staff must be available to ensure the surface is well balanced on the cushion. Once raised transfer the patient laterally across onto the receiving bed or trolley using a minimum of four handlers.

### Manual lift from floor

Manual lifts from the floor (especially those within confined areas) are high risk.<sup>11</sup> A mechanical lift using a hoist is undoubtedly the safest method of lifting a patient from the floor. However, if a hoist transfer cannot be achieved, for example if the patient has collapsed in an area that is inaccessible to a hoist, a manual lifting transfer may be the only alternative.

Determine the safest method: this should take into consideration the varying heights of the rescuers, the environment and the optimal positioning of the trolley. The risks are significantly increased if transferring directly to a bed because a bed is wider than a trolley. This causes the rescuers to hold the patient further away from their trunk, which increases the load on their spine.

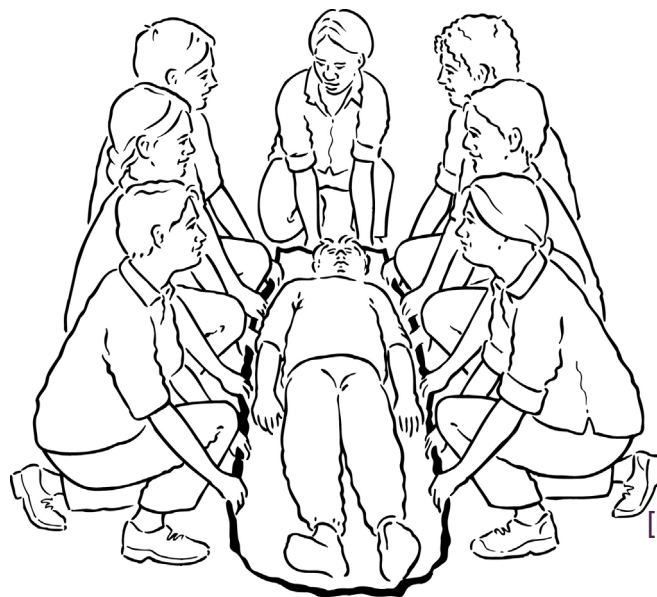




**This type of transfer is high risk – consider it only as a last resort. Make all individuals involved aware of the risks associated with this transfer and the physical abilities that will be required of them.**

The following is advised:

- The transfer must be well planned and all rescuers briefed – in total 8 people will be required to assist
- One person co-ordinates the commands and lifting activity; this person is required to support the head
- Ensure that a designated lifting sheet (i.e., a sheet that has been designed for lifting) is available. A scoop stretcher may be used
- Log roll the patient onto the lifting sheet
- A minimum of three people are positioned on each side of the patient



[REBA score 11]

- An additional person will need to position the trolley under the patient
- Each rescuer faces the patient and drops down into the half-kneeling position (or into a position they feel comfortable in and are able to rise from)
- Each rescuer grasps the lifting sheet (or handles if present) with their wrists in a neutral position
- On the command the rescuers stand lifting the patient to approximately waist-height
- The patient is transferred onto an appropriately positioned height-adjustable trolley.

If the resuscitation is unsuccessful, and hoist access is available, hoist the patient and transfer onto a trolley, bed or directly onto the mortuary trolley.



## Cardiopulmonary resuscitation on a bed or trolley

This is the most likely scenario faced by healthcare providers within the hospital setting. There are numerous types of beds and trolleys available; therefore, it is more useful for rapid assessment and intervention, that two categories are considered. This document addresses the general issues faced in relation to **electrically powered** and **manually operated** beds or trolleys. The use of height-adjustable beds and trolleys with electric profiling frames will eliminate many of the handling risks faced in the following situations by avoiding poor posture and actual moving and handling. It is the responsibility of the healthcare provider to ensure that they are fully familiar with any moving and handling equipment, including beds and trolleys. Significant injury can occur if individuals who have not received the relevant training attempt to use these devices.

To enable effective CPR, ensure the patient is supine. Keep a pillow because it may be needed to optimise the patient's position during laryngoscopy and tracheal intubation.

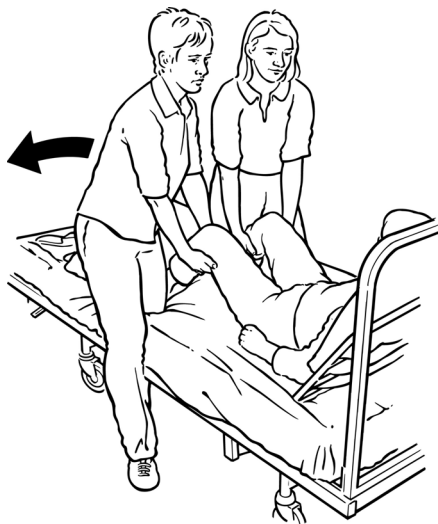
The following describes the general principles of how to get a patient on an **electrically powered** height-adjustable / profiling bed from a semi-reclined position into a supine position for performing CPR:

- Clear the environment of any hazards
- Ensure that the brakes are on and, if applicable, bedrails are lowered
- Depending on Make / Model / Specifications\*, one or two rescuers should use a dynamic stable based position
- With one hand to steady the raised part of the bed and the other to release the marked 'CPR' handle, the rescuers lower the bed slowly to a horizontal position. If available, the powered CPR button should be used.

\* Some electrically powered beds have 'controlled' release mechanisms; others may require the rescuer to release the bed while manually supporting the load. In these cases, be very careful to avoid bad postures, traumatic loadings and trapping hazards.

The following describes the general principles of how to get a patient on a **manually operated** height-adjustable bed from semi-reclined to supine to enable CPR to be performed:

- Clear the environment of any hazards
- Ensure that the brakes are on and, if applicable, bedrails are lowered
- **If a sliding sheet(s) is in position** (i.e. ICU / HDU patient)
  - With the bed at approximately hip-height, grasp the top layer of the sliding sheet and slide the patient down the bed away from the backrest until supine
- **If a sliding sheet(s) is readily available**
  - It may be possible to insert this quickly underneath the patient's hips/buttocks by rolling the patient to one side. Use the technique outlined above to move the patient down the bed away from the backrest
- **If no sliding sheet is available do NOT use the bed sheet as a sliding aid:**
  - Lower the bed to the lowest height
  - Each rescuer faces the patient and positions themselves on either side of the bed
  - The innermost knee of each rescuer rests on the bed whilst their outermost leg remains on the floor

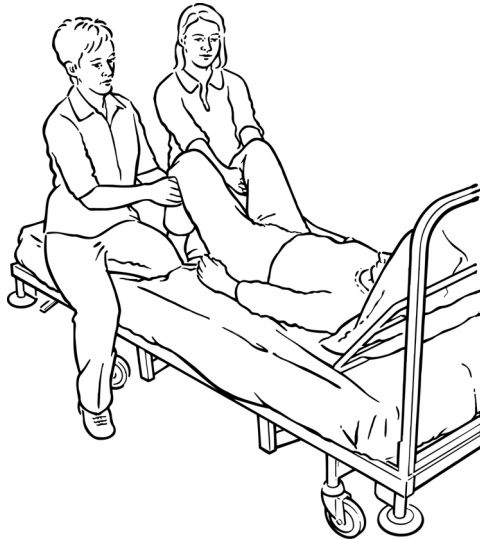


[REBA score 9]

- The patient's legs are flexed at both knees and hips
- Each rescuer grasps behind the back of the knee closest to them. One hand is placed in the crease of the knee and the other behind the calf



- On command, the rescuers transfer their body weight backwards towards their heels pulling the patient with them



- Re-position and repeat as necessary
- Readjust the height of the bed. The optimal height positions the patient between the knee and mid-thigh of the person performing chest compressions
- Consider the combined weight of the rescuers and the patient when using this approach; the total weight must not exceed the manufacturers guidance or specified safe working load of the bed.

If the patient has had a lower limb amputation, the rescuers' handgrips are modified according to the level of the amputation.

In the event that the resuscitation takes place on a trolley where there is a manual "pull up" backrest, two rescuers are required to lower the backrest using safer handling principles.



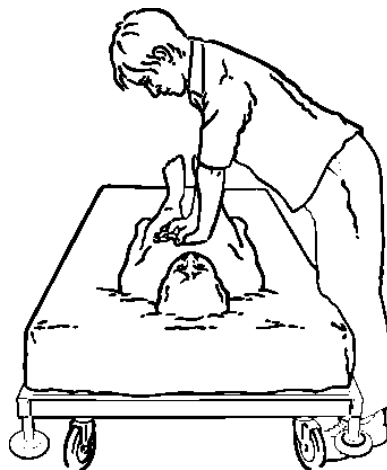
[REBA score 5]

When resuscitating a patient on a pressure relieving bed or mattress, refer to the manufacturer's instructions. For resuscitation to be effective, a firm surface is required underneath the patient.

## Chest compressions

The optimal height of the bed places the patient's chest level between the knee and mid-thigh of the person performing chest compressions. Teamwork is essential and the bed may need to be adjusted according to the different heights of the rescuers.

- Stand at the side of the bed
- Place your feet shoulder-width apart
- Flex forward from your hips
- Ensure that the compression force comes from flexion of your hips and that your shoulders are positioned directly over the patient's sternum



- If necessary, kneel with both knees on the bed. The bed must be clear of any hazards e.g., needles, blood. Ensure that your weight combined with the patient's does not exceed the safe working load of the bed
- Do not remain on the bed if the patient is being defibrillated.

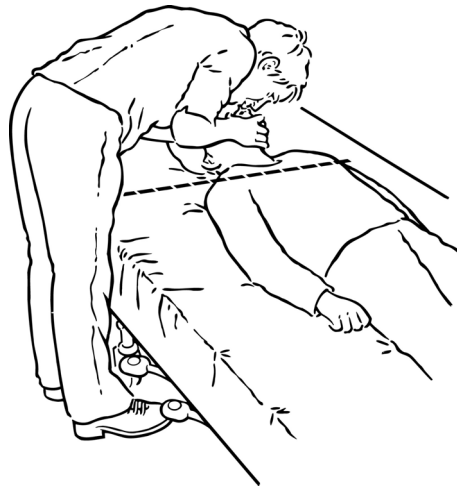
If a patient has arrested on a fixed-height bed or trolley, a firm stool or steps must be provided. These must be of a suitable height to ensure that the rescuer performing chest compressions is able to stand with the patient level between their knee and mid-thigh region. The stool or steps must have a non-slip surface area, which is large enough to accommodate the rescuer standing with their feet shoulder-width apart. Kick stools are not suitable for this procedure. No attempt should be made to kneel on a trolley.



## Airway management and ventilation

**For mouth-to-mouth, or mouth-to-mask ventilation (one rescuer):**

- Stand at the side of the bed facing the patient, level with their nose and mouth
- Bend forwards from your hips to minimise flexion of the spine



- Support your weight by leaning your legs against the side of the bed frame.

To intubate the patient's trachea or to provide mouth-to-mask or bag-mask ventilation (with two rescuers present), enable access by moving the bed away from the wall and removing the backrest.

- Position yourself at the top of the bed facing the patient
- Place your feet in the walk-stance position
- Once the tracheal tube has been inserted adopt a comfortable position and avoid prolonged static postures.



## Dealing with a cardiac arrest in a sitting position

To provide effective chest compressions the patient must be lowered to the floor. This manoeuvre should be carried out in a safe and controlled manner. Transferring a patient from a seated position onto the floor is high risk. Do not move the patient directly from the chair to the bed/trolley. An exception to this may be if the patient is already sitting on a sling and a hoist is readily available.

The optimal number of people required to perform this transfer is three. If fewer than three people are available, a less than optimal transfer may have to be attempted. Wherever possible wait for additional people to provide assistance.

### Three-person transfer

- The chair must be secure, with any brakes in the ON position
- If a sliding sheet is readily available, place it under the patient's feet and extend their legs to enable the feet and legs to slide away from the chair as the patient is lowered onto the floor
- One rescuer supports the head by standing at the side of the chair, level with the patient's head
- The other two rescuers face the patient in the chair, and position themselves slightly in front and to the side of the chair
- These rescuers get into a half-kneeling position with their innermost knee on the floor and grasp hold of the patient at the back of the pelvis/hip region with their outermost hand and behind the patient's knee with their innermost hand. An alternative is to use the high-kneeling position which some rescuers may find more comfortable



[REBA score 9  
of kneeling rescuers]



- If the patient is dressed it may be helpful to grab hold of their clothing or belt
- On the command from one rescuer, each kneeling rescuer transfers their body weight back towards their heels. This pulls the patient forwards out of the chair into a sitting position on the floor with their back resting against the chair



**NOTE:** A pillow placed on the floor to cushion the fall acts as a hindrance rather than a help.

- Once in this position, either move the chair and lower the patient's head and chest carefully to the floor, OR pull the patient's legs forwards away from the chair until the patient is supine.

### Two-person transfer

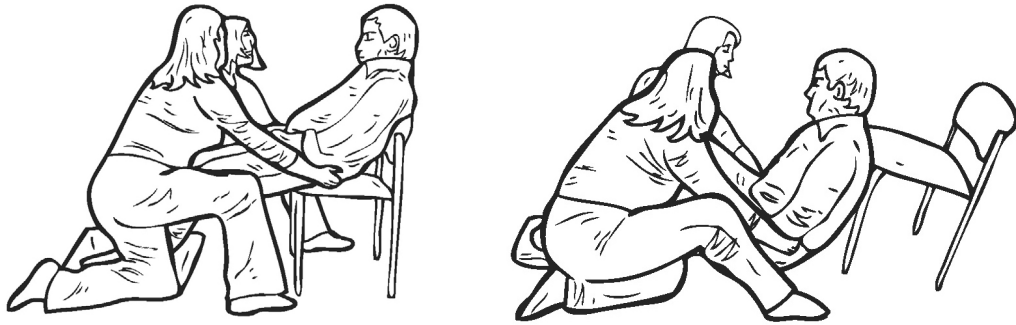
- Both rescuers face the patient in the chair, and position themselves slightly in front and to the side of the chair
- If readily available place a sliding sheet under the patient's feet
- Both rescuers get into a half-kneeling position with their innermost knee on the floor and grasp hold of the patient at the back of the pelvis/hip region with their outermost hand and behind the patient's knee with their innermost hand. An alternative is to use the high-kneeling position which some rescuers may find more comfortable







- If the patient is dressed it may be helpful to grab hold of their clothing or belt
- On the command from one rescuer, each kneeling rescuer transfers their body weight back towards their heels. This pulls the patient forwards out of the chair into a sitting position on the floor with their back resting against the chair.



[REBA score 11]

**NOTE:** A pillow placed on the floor to cushion the fall acts as a hindrance rather than a help.

Once the patient is in the sitting position on the floor, one rescuer takes responsibility for supporting their head, whilst the other pulls the patient's legs forwards and away from the chair, or if there is enough room, moves the chair. Alternatively, one rescuer gently pushes the patient sideways towards the other rescuer who lowers them to the floor.

### One-person transfer

Wherever possible one rescuer should not undertake this task and they should wait for assistance to arrive. However, it is recognised that in some situations a rescuer may decide to begin resuscitation and will need to transfer the patient to the floor. This is a high risk activity it should only be undertaken in life-threatening or exceptional circumstances.<sup>12</sup>

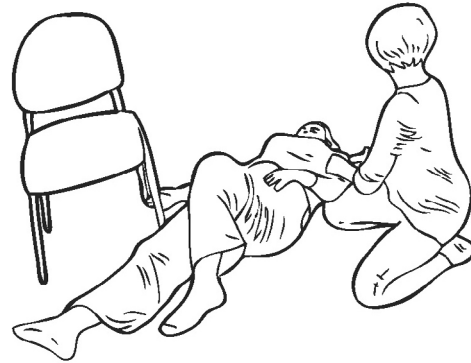
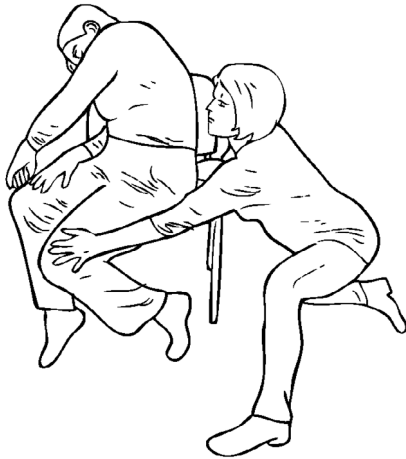
- Kneel on the floor to one side of the patient
- Position the patient's arm that is closest to you across their chest
- Push against the patient's thigh which is nearest to you with both your hands to position the patient's hips at the front of the chair
- Place your hand around the patient's furthest hip. Place your other hand on the patient's thigh which is closest to you



[REBA score 12]



- Push / pull the patient down to the floor.



[REBA score 12]

### Cardiac arrest on the toilet

If a patient has a cardiac arrest on the toilet it is likely the patient will fall either sideways or forwards. Before transferring the patient onto the floor it is important that the door is kept open. This will ensure that the entrance is not blocked and will enable other rescuers access to the room. If they still remain on the toilet they will need to be transferred to the floor using a similar technique as previously described for a sitting position.

- If the patient is dressed it may be helpful to grab hold of their upper clothing
- Avoid entrapment of the genitalia!



## Dealing with a cardiac arrest in a bath

This is an extremely difficult topic to address because shapes and sizes of bathrooms differ and access to the patient varies. Any physical technique of removing a collapsed patient from a bath is hazardous and includes high risk of injury. Risk assessments of this potential situation must be carried out locally, especially for those patients who are at risk of cardiac arrest, and evacuation procedures established.

To enable resuscitation to be attempted the patient needs to be out of the bath. Remove the plug so that the water can begin to drain from the bath before starting the transfer. The rationale for this is that the water will render the area hazardous and slippery for the rescuers, whilst also making it dangerous for attempting defibrillation. Towels, or other absorbent materials, should be placed on the floor before removing the patient from the bath. The patient must not be lying in a puddle of water and their chest must be dried before attempting defibrillation.

**NOTE:** Local evacuation procedures must also be established for birthing pools. After 20 weeks gestation (or obvious signs of a pregnancy) a woman's uterus can press against the inferior vena cava resulting in reduced cardiac output and hypotension. Whenever a pregnant woman collapses the rescuers need to place the patient either in a full left lateral position or, if this is not possible, a 15 degrees tilt to the left to relieve caval compression. This can be achieved by using sand bags, firm pillows, a wedge or the thighs of the kneeling rescuers to tilt the torso, or by manually and gently displacing the uterus to the left.

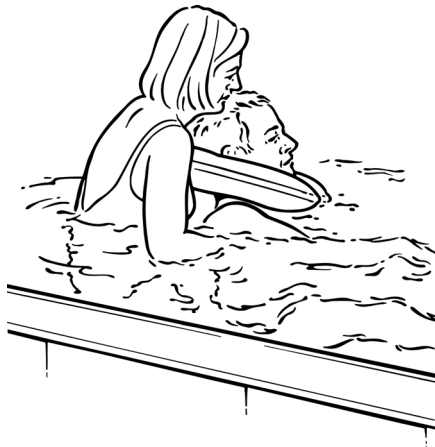


## Dealing with a cardiac arrest in a hydrotherapy pool

Each organisation must have a local policy in place for evacuating a collapsed patient from the hydrotherapy pool and the procedure must be practised regularly. Many hydrotherapy pools now have a ceiling track hoist installed and this is often the preferred method of evacuation from the pool in an emergency.

The following describes an alternative method for a rapid evacuation from the pool:

- The rescuer in the water pulls the emergency cord to summon help
- An inflatable neck support is placed around the patient's neck
- The rescuer floats the patient to a side of the pool which enables open access

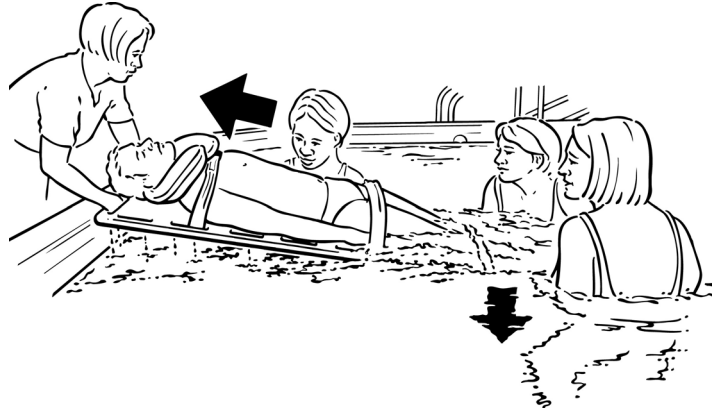


- The next rescuer to arrive puts an “evacuation board” into the pool and joins the other rescuer in the water to assist supporting the patient
- Further rescuers take over supporting the patient from either inside or outside the pool whilst the rescuers in the pool place the evacuation board under the patient





- Secure the patient onto the board with the straps provided
- Position the board so that the head-end is at the side of the pool
- The two rescuers in the water press down on the foot of the board to raise the head end high enough to rest it on the side of the pool



- The board can be pushed out of the pool directly onto the floor or onto a trolley if the pool is above ground level.

**NOTE:** Do not exceed the weight limit indicated on the evacuation board.



## Cardiopulmonary resuscitation and the bariatric patient

The principles for moving bariatric patients are the same as those already described in this document. Healthcare settings must ensure suitable equipment is available for their staff when dealing with these patients and that they are trained in its use. The following is additional guidance that should be taken into account to provide safer handling and effective CPR when a bariatric patient has a cardiac arrest.

### Airway management and ventilation

Airway manoeuvres and maintaining an adequate airway can be difficult due to the increased size of the head and neck and glottic oedema. Bariatric patients have a higher risk of regurgitation and aspiration.

Inflating the lungs during ventilation can be harder due to the patient's body shape, tissue mass, and because they are lying flat. Sitting the patient up slightly can make airway manoeuvres and ventilation easier but this will make chest compressions more difficult. Identifying chest movement can also be difficult. Adequate ventilation often requires early tracheal intubation by an individual who is already competent in this skill.

### Chest compressions

Identifying landmarks for chest compressions can be difficult. It is important that the rescuer maintains a stable base and minimises the risk of extending their reach when giving compressions. Chest compression quality may be compromised because of the increased physical effort required to achieve the full compression depth of 4 - 5 cm (for an adult) at a rate of 100 per minute. Adequate staff must be available to rotate rescuers every two minutes, or sooner, to reduce fatigue and ensure effective chest compressions.

### Transferring and handling the bariatric patient

- If the patient is on the floor with restricted access and has to be moved, use a bariatric sliding sheet with extension straps
- When transferring the patient following resuscitation, the hoist and associated sling must be suitable for the bariatric patient's body shape and weight
- Consider the hoist and sling safe working load, wider leg opening, and sling shape in relationship to the patient's body shape and tissue mass



- The use of hoists with stretcher attachments tends not to be appropriate for bariatric patients as the stretcher attachments may not be wide enough or have a suitable safe working load to accommodate the patient
- Bariatric patients should be cared for on an appropriate electrically operated bed
- Manual lifts are not recommended with bariatric patients.



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## Conflict of interest declaration

Name	Organisation	Conflict of interest
Sara Wright (Chair) Manual Handling Trainer/Advisor	Freelance	None
Sally Cassar Manual Handling Trainer/Advisor	Freelance and London Borough of Sutton	None
Zoë Hayman Resuscitation Officer	Chelsea and Westminster NHS Trust London	None
Sarah Icton Manual Handling Trainer/Advisor	Freelance	None
Ben King Lead Resuscitation Officer	Gloucestershire Hospitals NHS Foundation Trust Gloucester	None
Melissa Lovell Manual Handling Trainer/Advisor	Royal Society for the Prevention of Accidents (RoSPA) Birmingham	None
Sarah Mitchell Director, Resuscitation Council (UK)	Resuscitation Council (UK) London	None
James Pearson-Jenkins Senior Lecturer in Adult Acute Nursing; Manual Handling Trainer/Advisor	School of Health and Wellbeing, University of Wolverhampton	None



## Useful websites

Organisation	Website address
Resuscitation Council (UK)	<a href="http://www.resus.org.uk">http://www.resus.org.uk</a>
BackCare	<a href="http://www.backcare.org.uk">http://www.backcare.org.uk</a>
Disabled Living Foundation	<a href="http://www.dlf.org.uk">http://www.dlf.org.uk</a>
Health and Safety Executive (HSE)	<a href="http://www.hse.gov.uk">http://www.hse.gov.uk</a>
National Back Exchange	<a href="http://www.nationalbackexchange.org">http://www.nationalbackexchange.org</a>
The Royal College of Nursing (RCN)	<a href="http://www.rcn.org.uk">http://www.rcn.org.uk</a>
The Royal Society for the Prevention of Accidents (RoSPA)	<a href="http://www.rosipa.com">http://www.rosipa.com</a>