



MARSDEN

Weighing Patients for Diagnostic Purposes

A Marsden Weighing Group White Paper

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Introduction

Weight recording must be a standard practice for all hospital admissions. Weight can be a key indicator - and sometimes the only indicator - of poor health. Scales are also used to calculate medication dosages.

Using weighing scales in medical establishments is subject to legislation. This white paper will guide you through all the directives that you need to follow, the reports that they came from, and how to ensure your readings are accurate.





Medical weighing scales regulation

Since 2003, medical weighing equipment has been subject to regulation.

The weighing scales body, the UK Weighing Federation (UKWF) states: "As part of the Non-Automatic Weighing Instruments (NAWI) Directive, any weighing equipment used for medical purposes sold after 1st January 2003 must be of an Approved type and be verified before being put into service or following repair.

"The recent project undertaken by LACORS (The Local Authority Coordinating Body on Regulatory Services) has highlighted widespread problems within the field of medical weighing. Incorrect or inaccurate weighing of patients can have serious and life threatening consequences, especially where drug administration is calculated in relation to body weight."

a) Equipment used since before 2003

Weighing equipment put into use before 2003 can continue to be used without any further legal control. However the UKWF (and Marsden) recommends that this equipment should be taken out of service and replaced at the earliest opportunity.

b) New medical weighing equipment

Any new equipment must be medically approved and verified.

The equipment manufacturer must obtain approval to demonstrate that the equipment is suitable for purpose. Either the manufacturer or Trading Standards must then individually verify each piece of equipment.

Equipment which is fit for use is marked with the following identification.



<http://www.ukwf.org.uk/hres/medicalweighingguidancefinalv1.pdf>





LACORS National Medical Weighing Project

The aim of LACORS' National Medical Weighing Project in 2008/09 was to raise the profile of legal metrology. It involved council officers visiting more than 200 hospitals across the UK, and checking thousands of pieces of equipment for accuracy.

Findings of the report:

- Only 15% of hospitals adequately train staff in the use of weighing equipment.
- Accuracy of the weighing equipment was only 66%.
- Nearly one third of scales in use were unit switchable; one in ten were set to imperial measures, despite no medicine or treatments being calculated based on imperial units.
- Class III or unknown equipment accounted for almost 60% of scales – despite Class III equipment possessing scale divisions that are too wide apart for medical weighing.

Following the investigation, the following recommendations were made to hospital trusts:

- 1) Each hospital or trust should procure all weighing equipment centrally (rather than on a ward-by-ward basis), ideally by the department responsible for maintaining the equipment.
- 2) Each trust should instigate a programme of testing for their equipment.
- 3) Basic training in the use of weighing equipment should be given to all necessary staff.
- 4) Any inaccurate equipment should be removed from service pending replacement or repair.
- 5) All scales used for medical applications should be Class III accuracy or higher.
- 6) All scales used for medical applications should only display metric units.

“**The majority of the weighing equipment in use had been purchased before the current legislation had become relevant. In particular, I was surprised at the number that were nothing more than bathroom scales. One third of the instruments were inappropriate for hospital applications.**”

Lead Officer, Claire Hundsdorfer





Guide to Class Approval

The NAWI Directive applies to all scales used for the following purposes:

“Determination of mass in the practice of medicine for weighing patients for the purpose of monitoring, diagnosis and medical treatment.”

The directive has defined the scale’s accuracy by giving it a Class. Class I is the most accurate type of weighing equipment where little or no error is acceptable. The most common accuracy Class for medical weighing is Class III.

To determine Class the scale is sent through a vigorous ‘verification test’ – this may also be referred to as ‘stamping’. The test includes an assessment on weighing performance, where certified weights are placed on the scale from zero to the scale’s capacity. There is also a repeatability test. So you are assured when you receive the scale, it will be accurate.

Once the scale has passed its test, the verifier marks the scale by:

- A) Placing a sticker on it with their 4 digit code.
- B) Sealing it so it cannot be tampered with.
- C) Issuing the Declaration of Conformity which is the certificate that comes with a Class III Approved scale to show it meets all required regulations.

Margin for error

A margin for error is defined in the NAWI regulations 2000 (for more information, speak to your service engineer). If errors occur it may mean that the scale isn’t level, or may need repair or recalibration. This will be followed by re verification, which is undertaken by an authorised individual or Trading Standards.



Specific accuracies of medical weighing

The UKWF has recommended scales with specific accuracies are used for certain weighing instances. These graduations are highlighted in the table below:

	Adults	Young Children	Babies
Checking weight for records	500g	200g	50g
Regular monitoring to assess weight change	200g	100g	10g/20g
Measuring weight to assist medical diagnosis	200g	50g/100g	10g/20g
Measuring weight for critical treatment e.g. dialysis	50g/100g	20g/50g	5g
Recording birth weight			20g
Measuring weight before and after breast feeding			10g

Basic principles of medical weighing

Staff should be appropriately trained to use the weighing equipment. The scales should be used under suitable conditions (find out more in the scale's user manual).

Tip 1: Keep the scale level

All scales must be level and situated on a firm surface. Deep-pile carpets and other flexible surfaces are not recommended.

The operator should ensure, if the scale is moved, that adjustments are carried out to ensure the scale is level. Check the levelling bubble, ensuring this 'bubble' is at the centre of the ring.

Tip 2: Set the scale to Zero

Before weighing begins, the operator must ensure that 0.00kg is displayed on the scale by pressing the zero button. After weighing is complete, the scale should also be zeroed ahead of the next user. If you experience any problems with this function contact Marsden on 01709 364296.

Tip 3: Unimpeded by other object

Nothing should be leaning on the scales – they must be free to operate without the risk of a weight force affecting the reading. Thus patients or staff must not hold or lean against the scale's structure. This also means that the patient should be still (either standing, sitting or lying on the scale), and shouldn't be supported or held in any way.

Tip 4: Use the Tare function

Shoes should always be removed before using medical scales. However, their weight can be disregarded by the scale by using Tare.

If the patient is in a wheelchair and you are using a wheelchair scale, the weight of the wheelchair should be tared away before the patient is weighed.

To tare off an item or items, they must be placed on the scale first (or their weight, if known, entered into the scale beforehand) and the Tare button pressed.

Tip 5: Position yourself appropriately

If you are using a floor scale, the patient's feet should be located squarely on the weighing platform. On a chair scale, the patient's feet must be on the footrests and for bed scales, the patient should be positioned centrally on the bed.

Tip 6: Stay patient when weighing babies

Extra attention is required when weighing babies, as keeping them still can be challenging – remember to stay patient.





How to choose the right scale

In deciding which scale you need, assess your requirements by asking yourself these questions:

- Does your patient need a stand-on or sit-on scale? Or will the patient need to be weighed in a bed?
- Are adults or children going to be weighed?
- What is the maximum capacity you will need for your scale?
- How accurate does the scale need to be?

Conclusion

It is important that the patient's weight is recorded accurately to ensure the diagnosis is correct.

Legislation should be followed and weighing equipment should be:

- **Class III Approved**
- **Metric units only**
- **Subject to a regular service**

Your scale should be used for appropriate purposes. Some graduations are more suitable than others for different weighing needs. Generally speaking, the lower the scale graduations, the more severe situation that they can be used for.

You should be aware of the scale's capabilities, the information on the scale's data plate to be sure that the scale is used where it is appropriate and in the appropriate manner.

http://www.ajan.com.au/Vol29/29-3_Evans.pdf





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