

MARSDEN

The National Legal Metrology Project Report - A GP's Guide

A Marsden Weighing Group White Paper



In June 2015, the National Measurement and Regulation Office (NMRO) issued a report on a national project undertaken in 2014/2015 to assess the suitability of weighing instruments in doctors' surgeries, health centres, health visitors and pharmacies.

The National Legal Metrology Project was conducted after a similar, very successful project in 2008/2009 had looked at medical weighing in hospitals, with a view to assisting and promoting good practice. The 2008/2009 project was commissioned by the Local Government Co-ordinators of Regulatory Services (LACORS), and Trading Standards inspectors visited hospitals across the country, assessing the weighing equipment used and staff knowledge and competency with using weighing equipment.

Visiting hospitals and carrying out assessments had shown that not all weighing equipment was accurate, legal and fit for purpose. However, during the course of the project many improvements were made as old equipment was replaced with new, with better weighing results demonstrating the importance of buying suitable equipment and using it properly.

Due to the high number of inappropriate weighing equipment being discovered, lack of knowledge about its correct use - and the vast improvements made during the course of the project it was decided to repeat the exercise, for medical weighing equipment in locations other than hospitals.

The reason for including doctors' surgeries, health centres, health visitors and pharmacies in this project was because these are relatively independent organisations who do not historically receive many visits from Trading Standards to inspect weighing equipment. There were a number of other reasons - for example, mobile health visitors regularly transport their equipment from appointment to appointment, which could impact on their scales' accuracy.

Another key reason was that the locations targeted would weigh babies, and the weights determined may be used to prescribe medication. Prescribing the wrong medication based on an inaccurate weight reading could have detrimental - even fatal - consequences.

The emphasis of the project, as highlighted in the report was to take an educational rather than punitive approach. So, where inaccurate and unsuitable equipment was found, the reasons for it needing to be replaced was emphasised - this approach had been found to be very successful during hospital visits for the 2008/2009 project.

Where inappropriate equipment was found, the Trading Standards Officer offered standard advice to staff regarding weighing equipment and the appropriate equipment to use. If a particularly large number of inappropriate weighing devices were found in one area, advice was then offered to both inspected and uninspected premises.

The project began in 2014, and this white paper looks at the results, the lessons learned, and how you can ensure the weighing instruments in your practice are accurate, legal and fit for purpose.



A basic introduction to medical weighing equipment

The 2014/2015 National Measurement and Regulation Office report reported the following compliance levels:

Non-compliance rate: 23%

Non stickered equipment: 12%

Equipment not suitable for patient weighing requirements: 23%

Equipment that carried the required stickers: 59%

% of premises visited aware of the recommendations from the previous project: 16%

The results show that a better understanding of medical weighing equipment was needed across doctors' surgeries, health centres, health visitors and pharmacies.

The non-compliance rate of 23%, and the equipment not suitable for patient weighing requirements (also 23%) refers to whether the equipment was Class III Approved or not.

Patient weighing is a long-standing practice in the medical and healthcare industry, but the mis-prescribing of medication or treatment due to inaccurate scales can have life-threatening consequences.

All medical weighing equipment that is to be used in the medical industry for administering treatment and prescribing medication, i.e almost any weighing equipment used in hospitals, doctors' surgeries, health centres, health visitors and pharmacies must be Class III Approved.

If a scale is Class III Approved, it means it has been registered according to the UK Weighing Federation's guidance of accuracy and reliability relating to the purpose for which it is going to be used.

The EU Directive Non-Automatic Weighing Instruments (NAWI) directive number 2009/23/EC, which was made UK law in 2003, aims to control the technical as well as performance aspects of medical weighing scales. In addition to this, only scales that use metric units are legal for medical purposes.

Class III scales are part of a four-level classification process. Each class relates to the accuracy and performance of the scale, with each class allowing a margin of error in the reading the scale gives - with Class III for scales displaying the lowest accuracy. The NAWI Directive states that Class III, the classification of most mechanical patient weighing scales, is suitable for measuring sand and ballast.

In the National Legal Metrology Report, the NMRO recommended that medical weighing equipment is used to a minimum, and to encourage the replacement of older equipment whilst bearing in mind budgets, a 'quality over quantity' approach is suggested.

In other words, one very accurate weighing scale is encouraged, rather than many less accurate machines for every room.



Take aways:

- Always ensure the weighing scales you buy are at least Class III approved. Any Class III approved scale will carry a small 'III' badge on its dataplate
- Non Class III approved medical weighing equipment is likely to be less accurate and more likely to fail than those carrying the 'III' badge
- Only weigh patients in metric - this is now the only legal way to weigh patients for medical purposes
- Concentrate on having fewer, more accurate weighing scales than more, less accurate equipment.

'The death knell of the analogue scale'

The NAWI directive of 2003 effectively marked the end the era for the analogue medical scale. However, the National Legal Metrology Report notes that analogue equipment is still being used in many locations.

In fact, the most popular weighing scales found in surgeries were analogue Class III scales. These were, when tested, the most likely to fail. These scales are cheapest on the market for surgeries, but due to the high failure rate, could end up being more expensive over time, as they have to be replaced more frequently than digital scales.

Analogue scales have many more small pieces, like levers and springs, that are more prone to go wrong over time - in fact, the more you use them, and the heavier the weights you put on them, the more inaccurate they will become over time. When tested, analogue scale readings were commonly three divisions (or 3kg) out.

Digital scales employ a microchip and fewer other working parts, meaning there is less to go wrong or break over time.

In one case three out of the thirteen non-automatic weighing instruments, On testing, fell outside of the permitted tolerances - including one scale which was more than twice the prescribed limit of error. In other words, an extremely inaccurate scale!

Take aways:

- Avoid analogue scales where possible; they may be cheaper but will need to be replaced more frequently
- Analogue scales are more likely to fail testing, reading more inaccurate measurements than the digital equivalent.



Calibration

One area of concern was certifying and calibration of medical weighing equipment.

The process of calibration involves testing the weighing equipment with weights up to the capacity of the scale, checking each time that the correct weight is displaying.

One of the premises visited by Trading Standards Officers highlighted an issue, and that was calibrating of equipment - testing to ensure the scale still reads an accurate measurement - was not carried out as thoroughly and as accurately as it should be.

As mentioned above, when analogue scales were tested, their readings were on average 3kg out.

A member of staff from a private company had visited the premises in question and tested ten machines, according to the subsequent calibration report. The weighing scales had been tested up to 80kg - half of the capacity of the scale. Taking into account that, according to UK statistics, a third of men and women are obese, the visiting officer felt that this was not a true reflection of the amount of weight that may be regularly placed on the scale in service.

Calibration services were, in a lot of cases, provided by companies where the staff were not formally trained in the testing of medical weighing scales - nor were they engineers in their own right. The calibration and testing services provided by these companies were seen by surgeries and health centres as being good value for money - when in actual fact, they were providing an inferior service and leaving many premises with poorly-tested (and therefore likely still inaccurate) medical weighing equipment.

For the purposes of a calibration, the UK Weighing Federation (UKWF) recommends medical weighing scales are tested to plus 10% of their normal working range. The UKWF also has a Code of Practice for its members, part of which states, 'Members undertake to maintain the highest standards of service to weighing machine users.'

Take aways:

- The NMRO recommends simple daily tests are carried out at doctors' surgeries to ensure scales are working and giving accurate readings
- Check your calibration contract, if you have one in place; ensure your weighing equipment is being checked at least once a year. Try to obtain and calibration and testing results if you can, and check how thoroughly your weighing equipment was last tested
- Ensure the company you use for calibration and testing of your medical weighing equipment is not only fully qualified to do so (using engineers), but also carries out testing thoroughly
- Proper calibration may cost more, but it will ultimately lead to better-performing scales. Ensure whoever is carrying out the testing and calibration is a member of the UKWF.



Staff awareness

During the project, one of the largest concerns was the lack of knowledge of using, testing and identifying errors in medical weighing equipment.

In the original 2008/2009 project report, it was noted that, over the course of the project, the number of suitable weighing devices not only increased, but the knowledge of staff to use it properly, too.

The results in the recent National Legal Metrology Project Report showed, however, that 13% of the authorities identified that some practices were still using bathroom scales. It was believed that weighing scales bought from Argos were still acceptable for use in a GP surgery!

One of the reasons for lack of knowledge in surgeries was that, by and large, GP practices are independent from the NHS, and therefore not included in alerts that included advice on suitable weighing equipment, and how to use it.

Away from the NHS, it means the responsibility of maintaining awareness and providing basic training to staff - either by dedicated staff members, or by a medical weighing scale company, falls to the practice.

Take aways:

- Conduct staff training in the accurate use of weighing equipment, maybe on a yearly basis, and the new starts. The NMRO recently provided free training sessions, covering medical weighing equipment; a free video is available on their website. We have included a link at the end of the white paper.
- Make staff, particularly those responsible for purchasing equipment, aware that typical scales bought in the high street stores are usually unsuitable for medical use - only Class III approved scales should be purchased

Summary

The National Legal Metrology Project has highlighted issues in GP practices and health centres where considerable improvement is needed in the provision of weighing equipment.

However, as we've already stated, the fact that surgeries and health centres are largely independent from the NHS means a punitive approach couldn't have really been taken; the educational process of the report has instead shown great improvements.

As part of the Non-Automatic Weighing Instruments Directive of 2003, any medical weighing equipment sold for medical purposes must be Class III approved. However, that doesn't stop staff from GP practices buying bathroom scales, and it's likely many of these staff have not been informed or educated in the correct provision of weighing scales.



While there are vast improvements still to be made in the field of medical weighing, the improvements that have already been made is encouraging.

The inaccurate weighing of patients can have serious life-threatening consequences, particular in the case of drug administration - where the dosage is often calculated based on the body weight. Therefore, it is important the improvements in, and the knowledge of, weighing devices in doctors' surgeries, health centres, health visitors and pharmacies continues apace.

Further reading

The National Legal Metrology Project Report:

<https://www.gov.uk/government/news/medical-weighing-project-2014-to-2015-final-report>

The UK Weighing Federation Code of Practice:

http://www.ukwf.org.uk/codes_of_practice.html

National Measurement and Regulation Office staff training DVD

<https://www.gov.uk/government/news/medical-weighing-equipment-video-basic-introduction>

Marsden Weighing Group - who provided the medical weighing equipment for the NMRO training programme:

<http://www.marsden-weighing.co.uk/>



Recommended Medical Weighing Equipment

Marsden M-540



- 250kg x 200g <125kg>500g
- Class III
- Digital weighing scale
- Low cost
- Traditionally used in GP surgeries

Marsden M-430



- 220kg x 200g
- Class III
- Portable
- Lightweight
- Large LCD display with reversible read
- Non-slip, wipe clean surface

Marsden M-120



- 250kg x 200g <125kg>500g
- Class III
- Low cost scale
- Suitable for GP surgeries
- Optional height measure

Marsden M-100



- 300kg x 50g <150kg>100g
- Unique design
- Heavy duty construction
- Large platform to suit obese patients
- Integrated height measure