

Is UK Metrology Healthy?

A reflection on the UK weights and measures system on World Metrology day.

World Metrology Day is an annual event occurring on 20 May celebrating the International System of Units. The date is the anniversary of the signing of the Metre Convention in 1875. The World Metrology Day project is currently realised jointly by the BIPM and the OIML.

<https://www.worldmetrologyday.org/index.html>

The UK is very active in International Metrology, playing a significant role in OIML¹ and in his final report to CIML² at the end of his seven-year Presidency, Peter Mason, ex Chief Executive, National Measurement Office (NMO), explained the essential connection between Legal Metrology to Standardisation, Accreditation and General Metrology as part of the National Quality infrastructure. Very recently, however, the UK opted to cease its participation in WELMEC due to the perception of that body being associated with the EU. The WELMEC system has been foundational to much of the UK metrology system in recent decades so it will be important something of the same strength replaces this relationship – plans were unclear at the time of writing.

The theme this year is Measurement for Health – unsurprising in the year following the worst worldwide pandemic for a century, chosen to create awareness of the important role measurement plays in health, and thus in the wellbeing of every one of us.

Scientific advances in Health during that last century have been astounding and measurement, which drives scientific discovery of all kinds plays a key role. Accurate weight or mass evaluation plays a key role in itself, not just in the manufacture of medicines, but crucial in determining dosages relative to the mass of the person, state of fitness etc – In 2019 just under £7bn worth of **pharmaceuticals** was sold primarily by weight and measure to UK households.

Source: [Q2 2020 Consumer trends: current price, not seasonally adjusted](#) (excluding NHS prescriptions and non-optical equipment)

It was not until 1993, that weighing instruments used in this field were brought into scope of regulation³. Up until that point, anything could be used by practitioners and pharmaceutical manufacturers; bringing them into scope of regulation established standards to be maintained to the benefit of everyone engaging with medical services and products.

Enforcement of the regulations is the duty of Local Weights and Measures Authority – "Trading Standards" who is duty bound to employ qualified Weights and Measures Inspectors in sufficient number to undertake activity proportionate to the local authority area's needs. In the mid- 2000's it was established that compliance with the requirements introduced in 1993 had not been adequately understood or embedded. Some regional projects had investigated this and indicated low levels of compliance. As all local authorities have health services in their area, a National project to evaluate

¹ CIML Members are permanent National contacts for OIML, The International Organization of Legal Metrology

² https://www.oiml.org/en/publications/bulletin/pdf/oiml_bulletin_april_2017.pdf The Place of Legal Metrology in a National Quality Infrastructure,

³ The Non-automatic Weighing Instruments Regulations (1992), currently 2016- at Regulation 3

a "regulated non-automatic weighing instrument") for use for any of the following purposes.....

(d)the determination of mass in the practice of medicine for weighing patients for the purposes of monitoring, diagnosis and medical treatment;

(e)the determination of mass for making up medicines on prescription in a pharmacy and determination of mass in analyses carried out in medical and pharmaceutical laboratories;

this matter took place, first in 2008 in relation to Hospital services, which established the regional projects were correct, there was widespread non-compliance and some unsafe and detrimental practices in the weighing of patients. This exercise led to Department of Health instructions to improve the equipment used and its maintenance; the engagement and proactive work of the Weighing Industry, through their trade body the UK Weighing Federation⁴ led to further improvement.

More regional work moved into Primary Care settings and in 2014 a second National survey was undertaken into Health Centres and Doctors surgeries. The findings were the subject of a BRDO Report published by CTSI, National Legal Metrology Project Report 2014/15⁵; this included five recommendations for future activities:

5.1 NMRO Recommendations

- Improve knowledge of practice managers/health care professionals at doctors' surgeries using the training aid contained in Annex 1 and Annex 2, and encourage simple daily tests to be completed.
- Improve the quality of calibration contracts obtained by Doctors Surgeries and Health Centres by passing on the results contained within this report including the training aid contained in Annex 1 and Annex 2.
- Encourage the number of medical weighing machines to be kept to a minimum, possibly not needing one in every room, and permanently located where possible, so when patients arrive at the surgery/health centre they attend a central point where their weight is checked and logged before they attend the consultation. One very accurate piece of equipment (class III) is in use instead of many less accurate machines.
- NMRO to hold a meeting to invite manufacturers of medical weighing equipment, those offering calibration services, NHS Supply Chain and Trading Standards with the aim of increasing knowledge and raising standards within this area.
- Medical Weighing Equipment to be added to the Section 70 Return and as a result listed on the Risk Matrix contained within the Section 70 Report.

The combination of all of this activity was rightly seen as a success in Legal Metrology terms, however during the entire journey, less than half of the Weights and Measures Authorities in the UK actively engaged with the process at any stage, which of course raised the issue of the level of enforcement of Legal Metrology and highlighted at that point, that enforcement activity level was not uniform across the UK, many areas undertaking little or no metrology work. It has not been possible to ascertain if adding the instrument category to the Section 70 report has had any effect on increasing activity in this field as the collated reports have not been published by the national regulator for several years now.

It is a matter of fact, that the UK is globally recognised as having one of the best and frequently copied Legal Metrology systems in the world. It developed over many years spanning a century and a half and at its maximum effect in the 60's, 70's and 80's was viewed as a world class service. Development has not been maintained though; decision making on priority of enforcement is in the hands of 200 different Local Authority Heads of Service. In the past 30 years, the number of

⁴ <https://www.ukwf.org.uk/>

⁵ TS Today September 2015, page 12 - Medical weighing

Inspectors has suffered the same reductions in personnel as all Trading Standards services, leading to a significant postcode lottery of enforcement activity around the UK. Legal Metrology has suffered most grievously, especially from the impact of austerity on Trading Standards, often referred to as a Cinderella service itself, metrology has been seen as increasingly peripheral within service planning locally. At national level, many iterations of the national regulator and the creation of a National Trading Standards (NTS) body have failed to reverse the trend of decline. Indeed, it is stark to observe that NTS does not include metrology anywhere in strategic priority or discussions – there is simply no voice at the table.

Statistics speak for themselves; a 50 to 60% reduction in staffing from 2008 onwards, has had a devastating effect on enforcement engagement with businesses of all types, to the point way below maintenance of a critical mass of expertise. Trainee appointments and those candidates taking the Qualification have in no way matched the loss of natural wastage of retiring Inspectors and was massively compounded by the decade of cutbacks.

The OPSS Standards and Delivery report 2019 - 20⁶, published in December 2020, identifies and champions the need for a review of Product Safety legislation, however does not include the other aspects of TS law for which it leads as the National Regulator. Does this indicate a contentment with current legislation? If, as seems, there is little appetite to examine the UK legal metrology system we should at least, perhaps, question the grounds for being confident "it works". Recently Office for Product Safety & Standards (OPSS) – the current national regulator for metrology – has issued some statistics relating to household spending on measured goods⁷. All of the spending relies on fair an accurate measurement but there is very little activity to assure this, nor anything done to encourage LWMA activity in this area.

It is clear that no matter how good a legislative base is, without an effective system of enforcement, it is bound to fail to provide the intended protections. Returning to the two National Medical weighing projects, the 2008/9 Report showed that 93 Councils took part in the first round of inspections; the 2015 report showed engagement by 54; this out of a possible 202 Local TS Authorities. These figures illustrate the problem the UK has – enforcement is at a pitifully low level relative to the scale of the markets. It is now simply impossible to know whether the UK has an effective weights and measures regime because there is too little data being gathered to make a meaningful judgement. As we know, metrology is not self-evidencing of malpractice or mismeasurement so 'intelligence' is scarce when there is little proactive surveillance taking place. This effectively perpetuates a 'confirmation bias' of the opinion that metrology is of low risk for malpractice.

The trends of decline have also been seen in the recent number of candidates entering the Metrology training being very low despite the qualification structure reversion to a mandatory metrology module.

It is no exaggeration, therefore, to say the UK legal metrology system faces an existential crisis. At the time of writing, in fact, consideration is being given to remove the compulsory inclusion of the subject in future qualification structures which can only lead ultimately to even less emphasis on delivering Metrology enforcement at local level. An existential crisis indeed, it is incumbent on all those with power and influence over the UK weights and measures system to recognise that an

6

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/941215/opss-delivery-report-2019-2020.pdf

urgent review is needed to make metrology healthy once more by reversing the unintended consequences of neglect and complacency. World Metrology Day reminds us that Legal Metrology Enforcement would require a significant investment to begin to restore regional and local services to an acceptable standard fit for the 21st Century.

7 OPSS Statistics

- Did you know that in 2019 it is estimated almost £35bn worth of vehicle fuels and fluids such as oils and coolants was sold primarily by weight and measure to UK households?
- Did you know that in 2019 it is estimated that over £23bn worth of **meat and fish** was sold primarily by weight and measure to UK households?
- Did you know that in 2019 it is estimated that over £20bn worth of alcoholic beverages was sold for home consumption primarily by weight and measure to UK households?
- Did you know that in 2019 it is estimated that over £100bn worth of **food and soft drinks** was sold primarily by weight and measure to UK households?
- Did you know that in 2019 just under £7bn worth of **pharmaceuticals** was sold primarily by weight and measure to UK households?

Source: [Q2 2020 Consumer trends: current price, not seasonally adjusted](#)
(excluding NHS prescriptions and non-optical equipment)

Please use the hashtag for social posts should you wish to support world metrology day: #WorldMetrologyDay May 20