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# Training and accreditation of interviewers to carry out physical measurements on the UK Millennium Cohort

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## **Non-technical summary**

Physical measurements are widely collected alongside other survey data by field interviewers, providing important and comparative data on the health of specific populations. This in-home approach typically leads to higher response rates and is more cost-effective than the main alternatives, including follow-up clinics or nurse visits. However, to ensure high quality data collection, interviewers require additional training supported by enhanced quality control procedures throughout fieldwork. This has led to the development of formal interviewer accreditation schemes on a number of surveys in the US and UK.

Interviewers have been used to collect physical measurements for several waves of the Millennium Cohort Study (MCS), a large-scale longitudinal survey based in the UK. Influenced by best practice elsewhere, this paper provides an account of the formal accreditation process developed for interviewers on the most recent wave of the MCS, at age 11 in 2012. Traditionally response rates have been very high, for example, 98.8% at age 7. However, there was a concern that it would be more challenging to maintain this among 11 year olds who may be more self-conscious. In addition, most interviewers were collecting physical measurements (height and weight/body fat) for the first time; a result of a change in fieldwork agency.

A key challenge was incorporating the training and accreditation sessions into a full briefing programme. The accreditation focused on height only, a result of time and resource constraints, the greater complexity of this measurement, and concerns about weighing peers. Interviewers were assessed against an accreditation checklist that was developed directly from the measurement protocol to ensure consistency in assessment. Reinforcing this, all trainers were themselves trained and accredited, and provided with a set of guidelines to follow. Further quality checks took place beyond the training sessions, for example, all interviewers were accompanied within their first four weeks on the study, providing invaluable early feedback on performance.

In addition to providing many invaluable practical lessons, this approach led to improved training and support for interviewers, consolidating interviewer learning and boosting confidence with unfamiliar equipment (evidenced in high response rates). As a result, this paper offers a useful resource for other studies conducting physical measurements using field interviewers in a home setting.

## **Abstract**

Physical measurements are taken on a number of cross-sectional and longitudinal studies in the UK as well as internationally. It is well established that, with appropriate training, field interviewers are able to carry out physical measurements in a home setting. However, to ensure high quality data collection, formal accreditation is becoming increasingly common on many surveys in the US and UK. This paper describes our approach to developing an interviewer accreditation process for conducting physical measurements on the most recent wave of the Millennium Cohort Study (MCS), which took place at age 11 in 2012. The approach was

informed by formal training and accreditation schemes developed for other similar large-scale and longitudinal studies. Training, practice and accreditation sessions were built into the interviewer briefing programme and supplemented by additional quality control procedures in the field. In combination, these led to improved interviewer training and support for interviewers, and provided some useful lessons and implications for future practice.

### **Key words**

Longitudinal, interviewer training, accreditation, physical measurements, quality control, Millennium Cohort Study

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## Introduction

Physical measurements are undertaken on a number of cross-sectional and longitudinal studies in the UK as well as internationally, providing important and comparative data on the health of specific populations. The exact nature of the measurements taken varies between surveys but can include weight, standing and sitting height, waist and hip circumference, body fat and skinfold thickness.

These physical measurements are one element of a broader range of biomeasures that are often collected alongside survey data, which also includes biological, functional and sensory measurements (Jaszczak et al., 2009). Broadly, there are three main models for biomeasure data collection in social surveys: the first involves medically trained personnel in specially equipped clinics, and the other two are conducted in a home-visit setting with portable equipment, either by a mobile nurse fieldforce or specifically trained interviewers.

It is well established that, with appropriate training, field interviewers are able to carry out physical measurements in a home setting. A key advantage of using field interviewers relates to the higher response rates that can typically be achieved in a home setting where the physical data is collected alongside other study elements, rather than as part of a follow-up clinic or nurse visit (Clemens et al., 2012). It is also a considerably more cost-effective approach. However, in order to ensure high quality data collection, interviewers require additional training and support, and appropriate quality control procedures are required. Formal accreditation of interviewers is becoming increasingly common on many surveys in the US and UK.

The approach of using interviewers to collect physical measurements has been used for several waves of the Millennium Cohort Study (MCS), a large-scale longitudinal survey in the UK. Influenced by best practice on other similar large-scale studies, a formal accreditation process for interviewers was developed and implemented on the most recent wave of MCS, which took place at age 11 in 2012. This paper provides an account of the approach taken to interviewer training and accreditation along with the additional quality control procedures established and some of the practical challenges faced. Our findings will be useful for other surveys that carry out physical measurements in a home setting using field interviewers.

## Survey context

The MCS is a large-scale birth cohort study following over 19,000 children born in the UK in 2000/1. The data collection for the study takes place in the home and involves face-to-face interviews with multiple informants in each family. So far there have been five waves of the study at nine months (2001/2), three years (2003/4), five years (2006), seven years (2008) and most recently at age 11 (2012). It is run by the Centre for Longitudinal Studies (CLS), and the data collection is competitively tendered and sub-contracted to a reputable and suitably experienced fieldwork agency. For wave five, the contracted agency, Ipsos MORI, carried out the study for the first time.

The home visits for the age 11 survey consisted of a number of different survey elements; a computerised interview containing a self-completion element with the cohort child's main carer (usually their mother) and their partner (usually the child's father); direct assessments of the child's cognitive function; measurements of the child's height, weight and body fat; and a paper self-completion questionnaire for the cohort children.

Measuring child growth accurately and providing robust information on childhood obesity are important elements of the study. Since age three, interviewers have taken the cohort child's physical measurements in the home. At this stage they measured the child's height and weight. At age five and seven, waist circumference was added to the height and weight measurements, and at age 7, body fat measurement was introduced. Physical activity monitoring using accelerometers was also included at age seven, in collaboration with the Institute of Child Health.

At age 11, interviewers were required to measure height and weight and body-fat, after gaining consent from both the parent and child. Height and weight are used to calculate a child's Body Mass Index (BMI)<sup>1</sup>. BMI values can be compared to population reference data to identify children who are overweight or obese, and therefore potentially at risk of a number of short and long-term physical and psychological consequences. The body fat measurement provides an overall estimate of fat-free mass. The measurements take around 10-15 minutes to conduct.

Response rates to the physical measurements have traditionally been high on MCS, for example, 98.8% at age 7. However, there were concerns that it would be more challenging to obtain high response rates among 11 year olds who were likely to be more self-conscious about being measured by an interviewer.

Research evidence has shown that children who are overweight tend to grow up into adults who are overweight and this puts them at risk of illness and disease in later life (Cable and Brunner, 2011; Cooper et al., 2013; Power et al., 1997; Thomas et al. 2008). Excess weight is a major risk factor for diseases such as heart attack and stroke, type 2 diabetes, bowel cancer and high blood pressure. In addition, there are also potential psychological consequences, affecting confidence and self-esteem and an individual's underlying mental health.

Levels of childhood obesity are increasing. In 1965, the National Child Development Study, a similar study to the MCS, following the lives of individuals born in 1958, found that 11% of seven year olds were overweight or obese. By 2008, the MCS found that this proportion had almost doubled at 21% (Kneale, 2010).

Concern about the increasing prevalence of obesity, and its impact on child health, mean it is a major concern for the UK government, who have committed to delivering a sustained downward trend in the levels of excess weight in children by 2020

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<sup>1</sup> BMI = weight (kg) divided by height squared (meters).

(Department of Health, 2011). In this respect, gathering accurate physical measurements is a very important element of MCS, allowing the physical development of the cohort to be tracked over time and thereby providing valuable evidence for policy.

## **Experience from other surveys**

A number of other large-scale surveys, in the UK and internationally, use interviewers to collect physical measurements in a home setting. Formal training and accreditation schemes are standard practice in many US surveys, including the Health and Retirement Study (HRS), National Social Life, Health and Aging Project (NSHAP), the Fragile Families and Child Wellbeing Study and the National Longitudinal Surveys of Youth (NLSY). More recently, this approach has filtered across to the UK, and accreditation has been adopted as best practice by a number of surveys, such as the Health Survey for England (HSE), Understanding Society and the English Longitudinal Study of Ageing (ELSA).

Accreditation takes place after comprehensive training and practice, and involves formal certification of interviewers by a trainer to ensure they are accurately able to follow the measurement protocols. Performance is assessed against a standardised set of criteria, provided in the form of a certification checklist. Feedback is supplied to the interviewer following observation, and assessors are encouraged to be constructive. Generally, interviewers are required to pass the accreditation before starting work on the study in question.

This has a number of benefits; ensuring all interviewers are able to follow the protocols accurately while also helping to ensure that they are confident in collecting the measurements. In combination with fieldwork quality control, this is important in promoting data quality and maximising response rates.

## **Approach to training and accreditation on the Millennium Cohort Study**

The existing programme of interviewer training and fieldwork quality control on MCS is well established from prior waves. A core approach has been developed, with flexible content depending on the specific nature of the data collection elements and the age of the child at each particular sweep.

Interviewers are trained over three days in the classroom, and are also required to conduct a practice session with two children of the same age as the cohort children between day two and three. Classroom training is designed to draw on models of active learning including taught elements using slides and video clips, demonstrations and practice sessions. Interviewers are also required to complete some home learning before and after the briefing session as well as informal practice. This provides a very thorough and robust training programme for interviewers in all elements of the study.



For the physical measurements at age 11, 325 interviewers were briefed through a detailed classroom session on day one focusing on the measurement protocols, including video clips, followed by a demonstration of the equipment by the trainer in small groups. Where possible the groups were matched by gender and height with each interviewer measuring the height of a single subject in order to identify any observed differences. These groups also practiced using the scales, though they did not take weight and body-fat measurements. Between day two and three of the briefing, interviewers carried out all of the measurements in a home-setting with two specifically recruited 10-11 year olds, before feeding back on these practice sessions and completing a quiz on the measurement protocols on day three.

This approach had been used at prior waves of the study. However, in addition to this training, it was decided that accreditation for the physical measurements would also be beneficial. The decision to introduce accreditation was influenced by best practice elsewhere and the expectation that it would be more challenging to maintain response rates among 11 year olds. It was also considered important because, due to a change of fieldwork agency, for the majority of interviewers it was likely to be their first experience of taking physical measurements. Additionally, the protocol for the height measurement was changed at the age 11 survey, based on advice from the Child Growth Foundation<sup>2</sup>. All interviewers would be required to pass the accreditation before starting work. The challenge was to implement these accreditations within the constraints of an already very full briefing programme.

In addition, to provide a further quality control check and support for interviewers on a continuing basis, it was decided that all interviewers would be accompanied within their first four weeks of working on the study. Using a tailored accompaniment form, the aim of these accompaniments was to allow supervisors to offer on-the-spot coaching and training on specific elements, as required.

In combination, both elements – accreditations and accompaniments – were designed to ensure the data was collected to a high standard with high response rates while developing interviewer confidence and motivation.

## **The measurement protocols**

Before discussing the accreditation procedure in detail, it is worth reviewing the measurement protocols in order to set this in context. The protocol indicated the precise steps that an interviewer must follow to set up the equipment, take the measurement and pack the equipment away, ensuring that they took an accurate reading. The protocol was also designed to ensure interviewers took great care with the equipment. Interviewers were given detailed written instructions covering the measurement protocols, and a summary sheet which they were advised to take with them on household visits.

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<sup>2</sup> <http://www.childgrowthfoundation.org/>

For each measurement, if any aspect of the protocol could not be followed, interviewers were required to make a note of this. For example, if measurements were taken on a soft carpet, the child refused to remove their socks or was not wearing light, indoor clothing. They also needed to note any other factors that might affect a measurement, such as children with broken limbs in plaster casts which would impact on weight, and hairstyles or head dresses that could make the height reading inaccurate.

In order to provide the young people with confidentiality, the protocol instructed interviewers not to read the measurements aloud but to ask the child if they would like a record and write them on a postcard if desired. As interviewers were required to touch the child, a parent or other adult had to be present during the process for both child and interviewer safety.

### ***Height measurement***

Height was measured using a Leicester Stadiometer. The stadiometer consists of a base-plate, four measuring sections marked with a measuring scale on each side, a sliding measuring arm and two stabilisers. The interviewer was responsible for correctly assembling the height measure, preparing the child and ensuring they were correctly positioned in order to correctly take the measurement. Once in position they would bring down the measuring arm and move the head to achieve the Frankfurt Plane (an imaginary line passing through the flap of skin in the ear and the bottom of the eye). Next, the child was asked to duck and step off the height measure so as not to knock the head plate. The interviewer would then take an accurate reading, to the nearest completed millimetre, and immediately record it in the CAI program before dismantling the height measure and packing it away carefully.

### ***Weight and body fat measurement***

Interviewers were provided with a set of Tanita scales, which were calibrated before being issued and a new set of batteries were provided. At the same time as measuring weight, the scales measure body fat percentage by sending a weak electrical current around the body from one foot to another. The electrical current cannot be felt at all. Muscle and fat have different levels of resistance, which is measured by the scales as the current travels around the body.

Interviewers were instructed to measure weight and body fat for all children, except any who could not stand unaided. They were also required to check that no one having a body fat reading taken was wearing a pacemaker. In such instances, or if body fat was refused, the interviewer was able to measure the child's weight only. As with height, the measurements had to be recorded immediately into the CAI program.

### **Developing the accreditation process**

The main purpose of the accreditation was to ensure that interviewers were able to accurately follow the protocols for the measurements, which were designed to ensure a standardised approach to collecting height and weight/body fat.

As a result, the accreditation process was based directly on the measurement protocols, which, in turn, led to the design of an accreditation checklist (see appendices) to ensure trainers were consistent in their assessment of an interviewer's performance. Interviewers were not tested on other aspects of administering the measurements, for example, any explanations or rapport with the subject. However, they were briefed on the ethical and well-being considerations when working with children.

Members of the CLS team were trained in measuring height by an expert at the Child Growth Foundation. Subsequently, the Ipsos MORI research team worked with CLS to develop an accreditation protocol for all three measures.

The full briefing procedures for the physical measurements were tested in a session that also trained and accredited the briefing teams from CLS and Ipsos MORI. By familiarising the briefers with the measurement protocols and accrediting them, the overall quality of training they would subsequently give to interviewers was improved. This exercise also helped to develop the approach to interviewer accreditation during the briefings. At this stage, briefers were accredited in taking the height measurement in full, but for weight/body fat accreditation involved showing competency with the operation of the scales but not actually taking a measurement. This decision was taken as a result of the sensitivities involved in weighing colleagues and the fact that it was felt inappropriate to remove socks/tights which interferes with the body fat measurement. It was subsequently decided that interviewers would only be accredited on the height measurement.

To supplement the accreditation checklist, general and specific guidelines for the accreditation sessions were developed to ensure the approach was consistent across all briefings.

The general guidelines referred to the environment and testing conditions, including:

- Accreditation should take place in pairs, pre-determined by the Region Managers, matched by gender and height where possible. If groups of three were necessary, the roles should be rotated so that each was only the subject once;
- Accreditations should take place in a separate room, but where this was not possible, accreditors were instructed to look for a quiet area away from distractions;
- No feedback, including non-verbal clues, could be provided during the accreditation by either the accreditor or other interviewer; this would be provided by the accreditor to each interviewer separately once both had been observed;

- Use of the Physical Measurements Summary Sheet, indicating how to carry out both the height and weight/body fat measurements, along with the Frankfurt Plane card, was allowed (see appendices for both materials);
- Mistakes could be corrected and interviewers would not be penalised for this;
- Those being measured should remove their shoes (though it was made clear that children must remove shoes and socks), and they should be co-operative and not attempt to deliberately catch their partner out.

These general guidelines also ensured that briefers reminded interviewers on day one that they would be accredited on the final day of training, enabling them to seek further advice if required. Importantly, prior to attending the briefing, all interviewers were given notification that accreditation would be required before being allowed to begin work on the study.

The specific guidance referred to the accreditation checklist, which was split into three sections. This covered equipment assembly (section A), taking an accurate measurement (section B) and disassembly (section C). In order to pass a section, an interviewer needed to correctly carry out all of the elements in that section, and in order to pass the accreditation they needed to pass all sections. Since it would not be possible to take an accurate measurement or dismantle the stadiometer correctly if it had been assembled incorrectly, a pass for sections B and C was contingent on section A being successfully completed. If section A was passed and only one of section B and C failed, interviewers only had to re-sit the section they failed.

For those who did not pass the accreditation first time round, re-sits would be organised. On successful completion the accreditation form was dated and signed by the accreditor and interviewer.

## **Incorporating the accreditations into the briefing programme**

As noted earlier, the briefing for the age 11 survey involved a very full programme over three days. Since it was not possible to extend the briefings further, a key challenge was accommodating the accreditations within the existing plan, especially considering the large number (c.16) of interviewers per briefing

These time and resource constraints led to a decision to accredit on height only. This measurement is more complex, involving constructing the equipment and requiring interviewers to achieve the correct positioning of the child. In contrast, measuring weight and body fat is more straightforward. The concerns outlined above about weighing peers and the technical issues involved when not removing tights or socks, added to this decision.

The height accreditation session was allocated 40 minutes in the schedule. Working in pairs it was estimated that each accreditation would take around 15 minutes per interviewer (10 minutes to conduct the measurement and 5 minutes for feedback).

An additional 10 minutes was allowed for interviewers to re-sit any particular element.

An additional factor informing the overall design was the number of interviewers that required accrediting. Overall, 309 interviewers were briefed in 19 sessions, giving an average of 16 interviewers per briefing or up to eight pairs. However, day three was attended by just two Ipsos MORI briefers. If each brifer accredited four pairs, this would represent 2 hours and 40 minutes of elapsed time. This was much more than the time available. As a result, it was decided to accredit supervisors in advance, in order that they could help with accrediting other interviewers on day three.

Supervisors are higher-grade interviewers who, as well as working on the survey themselves, were expected to quality control other interviewers. Therefore, all supervisors were required to attend an early morning session focusing on quality control on day two. Having already received training in conducting the measurements along with other interviewers on day one of the briefing, they were accredited, and subsequently trained in carrying out the accreditation of others on the morning of day two. This meant that the supervisors did not have the benefit of the practice session between day two and three before their own accreditation. It also created additional practical difficulties, for example, in some instances the Regional Manager needed to be accredited and this had to be scheduled to ensure they were also available to meet and greet interviewers as they arrived for the day.

Since the number of interviewers/supervisors at each briefing varied, the approach required some flexibility on the part of the trainers. For example, sometimes re-sits had to be accommodated during lunch breaks or at the end of the day. Briefers also made themselves available to any interviewers or supervisors who wished to recap the protocols at these times.

## **Quality control during fieldwork**

Recognising that interviewers may continue to need support beyond the initial practice and briefing, supervision and monitoring did not stop at this point. A number of other checks were carried out once fieldwork had begun, including accompaniment and exception reporting.

As an initial check, all interviewers were accompanied by a supervisor within their first four weeks of working on the study. Priority was given to those interviewers who were identified as requiring extra support on the basis of their performance at the briefings or who were new to this type of research.

The standard Ipsos MORI accompaniment form was modified to allow closer scrutiny of the child measurements and supervisors were instructed to observe at least some of the child elements. This also allowed observation of interviewers' interaction with the child. In fact, all but four of the 309 interviewers working on the study<sup>3</sup> were

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<sup>3</sup> Although 325 interviewers attended the training, not all went on to work on the study.

observed carrying out at least one of the physical measurements. Supervisors were able to check interviewers' adherence to the protocols and to offer feedback, correcting any misconceptions or errors at an early stage.

The final check involved scrutinizing the data as it was returned to the office. This exception reporting looked for unusual patterns in the data by interviewer on a pre-determined selection of issues, including overall response rates for the physical measurement element and refusal of body fat measurement. It also involved looking at the notes entered by interviewers at the physical measurement questions. These checks revealed that some interviewers needed additional training with the equipment and/or feedback on their performance, which was provided directly.

## **Findings**

An assessment of the accreditation and quality control procedures implemented for the age 11 survey indicates that overall this was a successful exercise; leading to improved training and support for interviewers. It consolidated learning and effectively boosted interviewer confidence leading to high response rates for the physical measurements. In addition, the process provided some useful lessons for consideration when conducting this exercise in the future.

### ***Consolidating learning***

The accreditations were an effective way of confirming that interviewers had fully grasped the protocols before starting work, clearly emphasising the importance of handling the equipment and taking an accurate measurement. This encouraged interviewers to take this element more seriously than they may have done without the accreditations and additional quality control checks. It also meant that common errors could be pointed out, including ensuring interviewers were using the handle on the measuring arm rather than forcing the blade, and taking an accurate reading by rounding down to the nearest completed millimetre.

All interviewers passed the accreditation before leaving the briefings. Information collected suggests an average of around four interviewers per briefing were required to resit the height accreditation, but only a few had more than one resit.

### ***Interviewer confidence***

In addition to ensuring that interviewers had focused on the protocols during training and taken the process seriously, the accreditations and accompaniments were an effective method of boosting interviewer confidence in their own abilities when handling the equipment and taking a measurement of the child.

For example, the accompaniments were particularly important in improving interviewer confidence and providing on-going support, indicating the difference between classroom training and real-life scenarios, which combine handling the protocol with dealing with children and families. For example, this process showed that interviewers needed to be reminded not to read the height and weight measurement aloud, and reminders about this were included in the regular interviewer newsletter. Feedback on the accompaniment forms also demonstrated that interviewers found this process invaluable, with comments suggesting that the support provided had given them more confidence with the survey materials and equipment:

***“Very helpful and supportive”***

***“Learned a lot”***

***“Pointed out things I was not aware of”***

***“I am enjoying the programme so far and look forward to making a success of CNC<sup>4</sup>”***

In total, 17 interviewers of the 309 working on the study were accompanied for a second time and two were accompanied for a third time. Overall, as a result of this process, three interviewers were removed from the interviewing panel on the basis of their performance at the briefing and/or because their performance did not improve on further supervision.

### ***Response rates***

As a further measure of success, response rates to the physical measurements were high. Interviewers completed at least one of the physical measurements with 98.4% of the 13,469 cohort children interviewed. Although it is not possible to establish the counterfactual, this was only very marginally below the response rate for the age 7 survey (98.8%); a good achievement given the expectation that it would be more difficult among 11 year olds, who may be becoming more self-conscious. In fact, overall, just 0.8% of children refused to have their body fat measurement taken.

### ***Practical lessons***

In order to successfully complete the accreditations in the limited time available at the briefings, careful planning was required which provides useful lessons should this exercise be repeated. For example, the resources required must be carefully aligned in advance, in terms of the number of interviewers to be accredited and number of accreditors required as well as provision of sufficient space at each venue for the accreditations to be conducted in relative privacy. Briefers also need to remain flexible in their approach, responding to last minute changes in numbers of both interviewers and supervisors. To assist, as noted, guidance was provided on what to think about and look for in relation to a successful accreditation session, including laying the groundwork from day one.

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<sup>4</sup> CNC is the acronym for Child of the New Century, which is how the MCS is referred to in the field by interviewers and participants.

In addition, it is important to spell out a clear rationale for the accreditations to interviewers prior to arrival at the briefings to ensure their expectations are managed. To this end, interviewers were told when invited to the briefings that they would need to pass the accreditation before working on the study, but that detailed training and support would be provided.

At an overall level, accreditation of the briefers also helped to improve the quality of the training, both ensuring that briefers were able to correctly demonstrate the protocols but also that they understood the requirements for interviewers.

## **Conclusions**

The MCS team set out to improve the training and support for interviewers in order to ensure they were more confident in taking the physical measurements and to help maintain high response rates for this element. This was achieved by formalising the skills required and developing an accreditation process with additional on-going support in the field.

While the process was successful, there are a number of lessons for the future. For example, while it was important to have the accreditation on the final day of training, after interviewers had the opportunity to practice, it may have been possible to structure this session differently, for example, allowing more time for all accreditation and feedback. However, the overall time constraints and other pressures on the schedule meant that this was not possible. In a longer briefing programme, it may be possible to run some sessions concurrently, with half of the group working through their accreditations while the other half are in another parallel session. It was suggested that any downtime was used for other focused activities, while interviewers were waiting before or after being accredited, but none was available.

Despite all these pressures on time, a future consideration could be to include accreditation of weight as well as height. This could be accommodated in a longer briefing programme, and would require initial communication with interviewers that makes this requirement explicit. For example, this approach was taken on the Understanding Society bio-measures pilot, though interviewers were not required to remove their shoes or socks (McFall et al, 2012).

Finally, we suggest that any interviewers who were accredited on the MCS age 11 survey and go on to work on the next wave, or other studies that also measure height, would need to be re-accredited. This would provide a check on their understanding and help to correct any bad habits that may have formed, particularly if an interviewer has not used their skills for a while. It would also be important because protocols can and do vary between studies. For continuous studies, it may be worth considering rules about how long the accreditation is valid for, and conducting re-accreditation sessions at regular intervals.



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### Height Certification (Interviewers)

#### Section A: Assembled height measure correctly

- Measuring sections are in correct order
- Measuring sections have only one colour on each side
- Both stabilisers are correct way round i.e. facing the wall and at correct location i.e. one on bottom measuring section and one above measuring arm and both are clear of joints
- Blue measuring arm on correctly i.e. right way up and facing the base plate
- Height measure resting correctly against wall or door

#### Section B: Preparing the subject and taking accurate measurement

- Subject positioned correctly on height measure
  - Feet on base plate in footprints
  - Heels placed as close together as possible and touching back of base plate
  - Legs and back as straight as possible and against the height measure
  - Arms hanging loosely by sides
  - Facing forwards
- Slid measuring arm by handle down onto the subject's head
- Blade of measuring arm was touching subject's skull
- Placed the palms of hands on the subject's cheeks with fingers resting at the top of the bony bits just behind their ears
- Used hands to tilt head forward while standing in front of subject
- Frankfurt Plane position achieved
- Released subject's head
- Asked them to duck off the height measure ensuring they did not knock the measuring arm out of position
- Took an accurate reading of height measurement:
  - Reading taken in centimetres
  - Reading taken in between the red pointers
  - Reading taken to the nearest completed millimetre

#### Section C: Dismantled and packed away height measure correctly

- Measuring sections slotted correctly into base plate
- Measuring arm slotted correctly into base plate
- Stabilisers secured with elastic band
- All equipment placed in box correctly and box secured with the strap

Name of person being certified:.....

Date:.....

Name of certifier:.....

Organisation:.....

Signature:.....

## HEIGHT MEASUREMENT

### *Assembling the height measure*

1. Ensure the four measuring sections are in the correct order by matching the icons (★ to ★) (● to ●) (■ to ■).
2. Ensure the measuring sections have only one colour on each side.
3. Ensure both stabilisers are on correct way round – i.e. facing the wall.
4. Ensure one stabiliser is on the first measuring section and the other is on the fourth above the blue measuring arm. Ensure both stabilisers are clear of joins.
5. Ensure the blue measuring arm is on correctly – i.e. right way up and facing the base plate.
6. Ensure the assembled height measure is against a wall or door.

### *Preparing child*

1. Ensure the child's shoes and socks or tights are removed. Ensure they have nothing in their pockets and they are wearing light clothing.
2. Ask child to take off glasses if worn and remove hair accessories and hairstyles that may affect the reading.

### *Taking the measurement*

1. Ensure the blue measuring arm is raised to allow sufficient room for the child to stand beneath it.
2. Ask the child to stand correctly:
  - their feet on the footprints.
  - heels as close together as possible touching the back of the base plate.
  - legs and back should be as straight as possible and against the height measure.
  - facing forward and arms hanging loosely by sides.
3. Slide the blue measuring arm by the handle firmly on to the child's head, ensuring the blade touches the skull.
4. Stand in front of the child and place the palms of your hands on the child's cheeks and your fingers resting on the top of the bony bits just behind the ears.
5. Tilt the child's head forward until it is in the Frankfurt Plane. The child's head should raise the blue measuring arm.
6. Release the child's head and ask them to duck off the base ensuring they do not knock the blue measuring arm.

### *Recording the measurement*

1. Read the height measurement in metric units from between the red pointers to the nearest **completed** millimetre.
2. Immediately record the measurement in CAPI (*htcm1*), the number of attempts made (*htat*), time measurement was taken (*htm1* & *htm2*), any special circumstances (*htrl*) and other information (*htel/htex*).

### *Dismantling and packing away*

1. Slot stabilisers into ends of measuring sections.
2. Slot measuring sections correctly into base plate.
3. Slot measuring arm into base plate (turn it upside down to do this).
4. Place height measure into the box and secure with strap.

## WEIGHT AND BODY FAT MEASUREMENT

### **Preparing the equipment**

Place the scales on a firm, level surface. If only a soft carpeted surface is available you will be able to make a note of this in CAPI after you have taken the measurements (*Wtsc*).

### **Taking the measurement**

1. Check scales are set to Kg mode by pressing grey 'kg/lb' button.
2. Switch the scales on by pressing the yellow 'ON/SET' button on the right hand side of the hand-held console. The console will beep and the display screen will flash with the default age (30).
3. Enter the child's age in years. Use the yellow arrow buttons to scroll down to the desired age. Press the 'SET' button to confirm the selection. The console will beep.
4. Select the child's gender using the yellow arrow buttons. Then press the 'SET' button to confirm the selection. The console will beep.
5. Next enter the child's height in whole centimetres. The console will display the default height (170). Use the arrow buttons to scroll down to the desired height. Press the 'SET' button to confirm the selection. The console will beep.
6. The console will beep twice and the display will show '0.0'. Ask the child to step onto the scales.
7. The child should stand with both feet flat on the surface of the foot pads. Make sure their feet are positioned touching the front and back foot pads. The child should face forward, stand up straight with hands by their sides. They should stand still.
8. Once stabilised, the weight measurement will appear in the display and the scales will beep. You should not attempt to note the weight at this point.
9. The child should remain on the scales while their body fat is measured. Five zeros (00000) will appear on the display. After they have all disappeared, the scales will beep twice to indicate that body fat has been measured. Ask the child to step-off the scales.
10. The display will rotate between body fat percentage and the weight for about 30 seconds. You should note both the weight and body fat percentage at this point.
11. The scales will turn off automatically after about 30 seconds. Press the OFF button to turn the scales off before 30 seconds. In order to take the measurement again, you should turn the scales off and back on again.
12. Always use the scales in 'kg mode' as we want to enter height in centimetres and measure weight in kilograms.

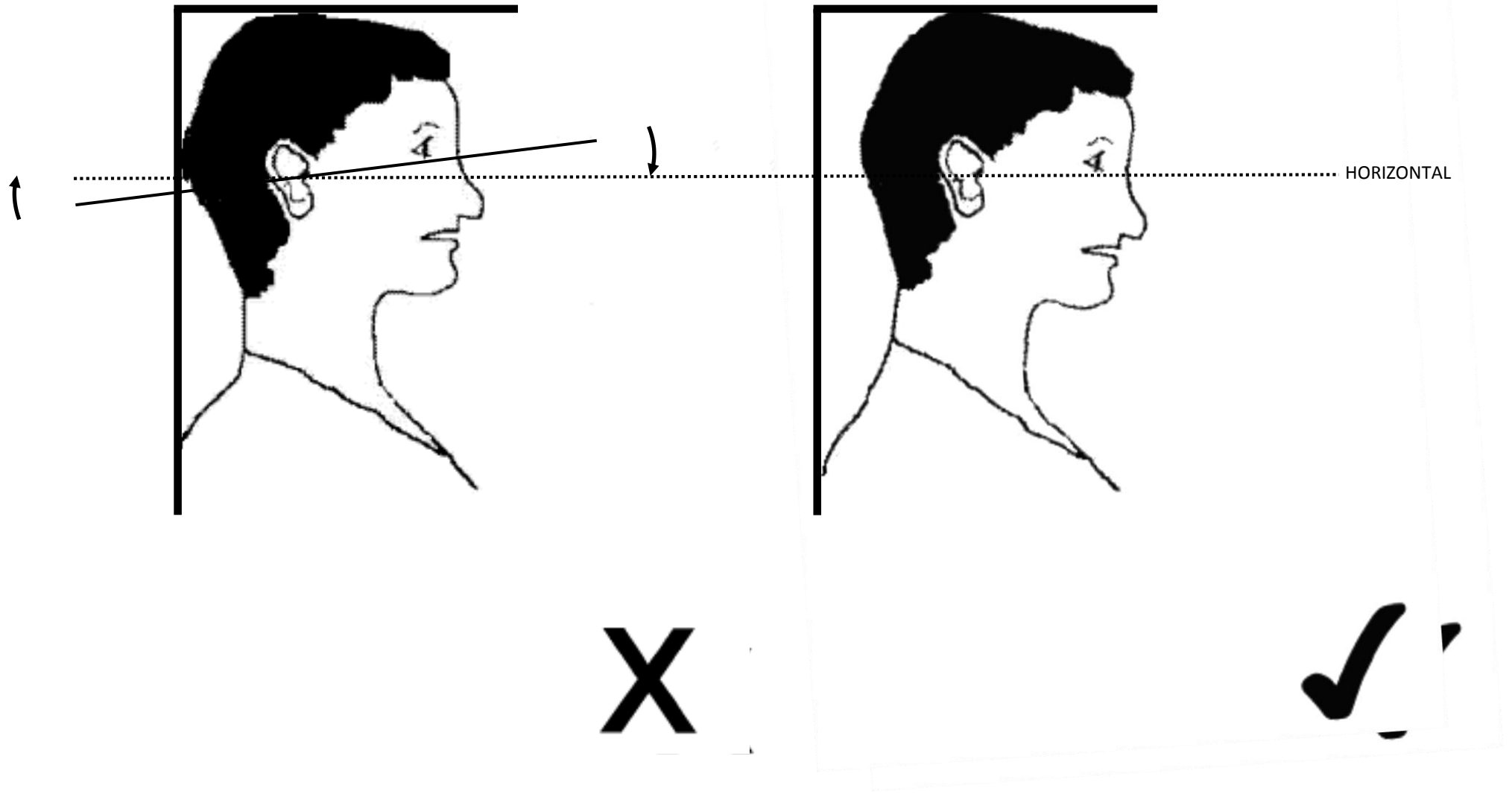
### **Taking the measurement – weight only**

1. Check scales are set to Kg mode by pressing grey 'kg/lb' button.
2. To turn the scales on in weight only mode, press the red WEIGHT button.
3. The display will show '8888.8' (and beep) and then display '0.0' (and beep).
4. Ask the child to step onto the scales.
5. The child should stand with both feet flat on the surface of the foot pads. The child should face forward, stand up straight with their arms by their sides. They should stand still.
6. Once stabilised, the weight measurement will appear on the display and the scales will beep and the display will flash.
7. Read the weight from the display with the child on the scales and then ask the child to step off the scales.

### **Recording the measurement**

Read the measurements from the display, immediately record the measurements in CAPI (*wbcm/bfpc*), the number of attempts made (*wtat*), and whether the scales were placed on an uneven floor, a carpet, or neither (*wpsc*). In addition record whether there were any special circumstances that affected the measurement (*wtrl*) and any additional information (*wtel/wtex*)

# FRANKFURT PLANE CARD



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