

University College Cork

**FACCT**

**(Fluoride And Caring  
for Children's Teeth)**

**Fieldwork Manual 2013-2014**

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## **1. Introduction**

### **1.1 The FACCT study**

FACCT stands for **F**luoride **A**nd **C**aring for **C**hildren's **T**eeth, and is a collaborative project between the Oral Health Services Research Centre (OHSRC), University College Cork and the HSE dental service, with funding from the Health Research Board under a competitive Collaborative Applied Research Grant in Population Health and Health Service Research.

### **1.2 Aim of the FACCT study**

The aim of this study is to evaluate the impact and the outcome of the change in water fluoridation policy (2007) on dental caries and enamel fluorosis in Irish children, while also considering the change in policy on the use of fluoride toothpastes (2002).

Two age groups of children will be examined based on whether their permanent incisors were formed prior to (age 12, born 2001) or after (age 5, born 2008) the reduction in fluoride levels in water. The evaluation will also incorporate estimation of the impact of oral health on quality of life and will measure perceptions of the aesthetic acceptability of fluorosis and caries through focus groups with parents and with 12-year-old children.

The FACCT study also includes an economic evaluation of water fluoridation and will explore the potential of electronic health records to generate oral health data that can be used to monitor oral health. These aspects of the study are not covered in this manual.

### **1.3 Study location**

The study is being conducted in primary schools in Dublin and in Cork/Kerry. Dublin has been selected because over one quarter (28%) of the population of Ireland resides in Dublin (Census 2011) and it is served by large water treatment plants with an excellent record of control of water fluoridation at the recommended levels. All of Dublin is fluoridated. Cork and Kerry have been selected to represent both fluoridated non-fluoridated areas.

### **1.4 Examining teams**

Ten examining teams will undertake the fieldwork for FACCT: 2 teams in Dublin, 2 teams in Kerry and 6 teams in Cork. Each examiner and recorder will be assigned a number which will be used when logging onto the direct data entry system.

## **2. Study administration**

Each team will be provided with a list of schools detailing:

- the school name
- roll number
- address
- phone number
- e-mail
- number of children in each class in each school to be issued FACCT consent packs

Each team is responsible for planning and organising the schedule for school visits in a way that maximises efficiency. Teams in the Cork/Kerry area should focus on non-fluoridated schools initially (with the exception of gaelscoileanna), as maximum participation in non-fluoridated areas is required to meet the sample size for these areas.

## 2.1 Gaelscoileanna and schools in gaeltacht areas:

The following FACCT study documents will be available in Irish if requested by gaelscoileanna or in gaeltacht areas:

- Letter to School Principal and Board of Management
- Information leaflet
- Consent form
- Residential History form
- Parent survey

An Irish version of the electronic Child Oral-Health-Related Quality of Life (COHRQoL) and oral health behaviours questionnaire will also be made available.

## 2.2 Initial contact with schools

Staff at the OHSRC will contact each selected school to determine the name of the Principal and of the Chair of the school Board of Management.

Staff at the OHSRC will send a letter to the school Principal and Board of Management of each school, informing them about the study and requesting their participation. The letter will be followed up by the examining team with a phone call within one week to:

- Confirm that the letters have been received
- Emphasise the importance of the FACCT study to provide essential information on the current status of children's oral health and that the results of the FACCT study will help inform future planning of children's oral health services
- Assess the school's willingness to participate in the study
- Answer any questions that the school may have.

If, at the initial contact, it appears that the school is open to participating in the study, the team member should:

- Check **overall numbers** of children in each of the study classes (Junior Infants and Sixth)
- Verify **number of classes in each of the relevant years** (Junior Infants and Sixth). If there is more than one class, establish how the classes are named e.g. Rang 1, Rang 2 or Miss O'Donnell's class, Mrs Moriarty's class (this information is important if a class has to be randomly selected). Note the names of the junior infants and 6<sup>th</sup> class teachers.
- If the examining team are issuing FACCT consent packs to all children in a class, it is **not** necessary to have a **list of names** for each class beforehand. However, if children within a class must be randomly selected to receive a FACCT consent pack, it is helpful to have the children's names to perform the randomisation and to label the FACCT consent pack envelopes for the 'selected' children. If a school will not release children's names in a

situation where random selection of children within a class is required, it is still possible to perform the random selection. In this situation please contact the OHSRC for further advice.

- Paperwork containing information about class lists should be shredded once they are no longer required by the examining team. If a team does not have access to a shredder, this information can be returned with the completed FACCT packs and we will shred it in the OHSRC.
- Identify a named **key contact person** in the school for future administration of the study.
- If a site visit is possible, arrange a date and time to deliver the **FACCT consent packs** and to view the room/area where the study will be conducted.
- If a site visit is not feasible, arrange a time to **phone the Principal or a named contact** to discuss the requirements for the study in more detail.

### **2.2.1 Schools where a large proportion of children have English as a second language or where literacy among parents is low:**

Examining teams may encounter schools where children have English as a second language and parents may not have any proficiency in speaking/reading English and schools where literacy among parents is low. In these situations we will take a pragmatic approach. It is really important that these children are included in our sample so that we get an accurate picture of the oral health of children in modern Ireland. You could consider asking the principal if there a school liaison officer available. They may be able to help the parents to complete the paperwork. In this situation we will aim to obtain the **minimum information required to enable us to examine the children** and obtain some information about their background, namely:

- **Consent completed and signed**
- **Residential history completed**
- **Medical history completed and signed**
- **Section 2 part 5 of the parent survey only “Tell us a little about your family”**

### **2.3 Selection of children for the survey**

**In non-fluoridated schools please issue consent packs to ALL children in Junior infants and 6<sup>th</sup> class, no matter how large the class.**

The number of children to be issued consent forms in fluoridated schools has been determined by the statistician based on the class numbers from the school year 2011-2012, which was the most recent data available at the time the sample was drawn. Therefore, the numbers indicated may not match the class numbers in the current school year.

- When the number of children in the class is **LESS** than the number required, issue a FACCT consent pack to **all** children in the class.
- When there are two or more classes of the same grade in the school (e.g. four Jnr Infant classes), a class will be randomly selected using a random number generator. If insufficient numbers of children are present in the first class selected, another class will be randomly selected until the required number of children to issue consent

forms is obtained. NOTE: The random number generator is on each laptop used for direct data entry.

- If the number of children in the class is **GREATER** than the number required **by no more than 4** children, every child in the class should receive a FACCT consent pack. Example: consents are to be issued to 20 children but there are 24 in the class – issue 24 FACCT packs. This rule applies to the **total number of children in the class NOT to the breakdown of numbers in the class by gender.**

**Example 1:**

	Actual number in class	Number of children to be issued consents in statistician sample
<b>Boys</b>	13	7
<b>Girls</b>	9	11
<b>Total</b>	22	18

The number of children in the class is greater than the number required in the sample by 4, therefore, all the children in the class will be issued consents.

BUT, after we have done that we are still short 2 girls. This is not an issue unless there is more than one class in the year i.e. if there is another say 6<sup>th</sup> class, then another class within the year should be selected (randomly if there is more than 2 additional classes) and two girls should be randomly selected from that class to fill the sample. The rest of the children in that second class will get a not selected letter.

**Example 2:**

	Actual number in class	Number of children to be issued consents in statistician sample
<b>Boys</b>	4	2
<b>Girls</b>	9	1
<b>Total</b>	13	3

Obviously we need to randomly select children here. 1 girl and 2 boys should be randomly selected. For the purposes of our sample, it is not an issue that only one girl will be selected. Only 2 boys will be selected i.e. the “greater than the number required (sample) by no more than 4” does not apply to the gender breakdown.

- If the number of children in the class is **GREATER** than the number to be issued with consent forms **by 5 or more children**, the required number of children in the class will be randomly selected using random number generator e.g. consents are to be issued to 20

children, but there are 25 children (or more) in the class – randomly select 20 children from the class list to receive a consent pack. The remaining children receive a “not selected” letter (Appendix 1). The reason for taking a sample of children is to avoid over-sampling. Random selection is used to avoid systematic bias which could occur if the class teacher was left to pick the participants e.g. he/she might select those he/she thinks might be most likely to return the paperwork, which would introduce selection bias.

### **2.3.1. Instructions for using the random number generator**

The random number generator is on the desktop of your survey laptop. It allows you to randomly select a class and/or to randomly select children within a class.

1. If there is more than one class, assign a number to each class and use the random CLASSES generator to select one class.
2. Once the class has been selected, split the class list for that class into boys and girls and number each list. For each gender, use the random SUBJECTS generator to select the specified number of children to issue consent forms to.
3. Write the child’s name, (and class if there are more than one class in junior infants or 6<sup>th</sup> class) and the school on the front of the FACCT consent pack envelope. Children who were not selected should receive a “not-selected” letter in a similar envelope (Appendix1). Hand deliver or post the FACCT packs to the school.
4. Further details on using the random number generator software can be found in the manual on your laptop desktop.

### **2.4 FACCT Tally Sheet**

An entry must be made in the tally sheet for junior infants and 6<sup>th</sup> class in each school. As mentioned above, the number of children to be issued consent forms has been determined by the statistician based on the class numbers from the school year 2011-2012, which was the most recent data available at the time the sample was drawn. Therefore, the numbers indicated may not match the class numbers in the current school year. The actual number of FACCT packs issues to each class, the number of packs returned complete, incomplete, blank and not returned along with the total number of children examined in each class must be recorded by the examining team for each school. The information in the tally sheet will be cross checked with the paper returns from each school and the direct data entry records to monitor accuracy.

On completion of a school please email or phone the OHSRC with the following information from the completed tally sheet:

- FACCT consent packs issued to Junior Infants boys & girls
- FACCT consent packs issued to 6<sup>th</sup> class boys & girls

### **2.5 FACCT consent packs**

FACCT consent packs will be prepared and distributed by the Oral Health Services Research Centre.

Each pack contains

- An information leaflet



- Consent form
- Residential history questionnaire
- Parent survey
- A small bottle for taking a sample of domestic tap water (Cork/Kerry only)

All but the information leaflet are barcoded with a 5-digit number– this is the child’s unique subject ID. The first digit represents the class - 1= Junior Infants, 6=Sixth class. The barcodes have been assigned as follows:

	Junior infants	6 <sup>th</sup> class
<b>Dublin</b>	1-0001 to 1-1999	6-0001 to 6-1299
<b>Cork</b>	1-2000 to 1-3999	6-1300 to 6-2999
<b>Kerry</b>	1-4000 to 1-4999	6-3000 to 6-4000

During the fieldwork please **SCAN barcodes** wherever possible. If you must type the barcode, please double check what you have entered.

The FACCT consent packs are distributed to the children in unsealed envelopes. Parents are instructed to return the envelope to the class teacher sealed.

## 2.6 Second contact with School

### 2.6.1 Site visit (if school is near to examining team location)

NOTE: not a Friday or day before a school break.

A visit to the school to deliver the FACCT consent packs offers the opportunity to meet the personnel in the school and to assess the proposed room/area for the examinations.

- Speak to the Principal and highlight the importance of the survey for national policy. Stress that a good response rate is necessary.
- Outline the requirements for the survey (space, natural light, power sockets, and sufficient space to set up an examination area and separate area where 6<sup>th</sup> class children can complete the Quality of Life questionnaire). If possible, view the room/space that the school can provide for you. Check that appropriate sized tables and chairs, adequate lighting will be available and the location of power sockets in the examination room.
- If possible, speak to teacher of each selected class about the importance of the FACCT study and the importance of obtaining a good response rate to the survey. An explanatory letter for the class teacher has been prepared and a copy can found in Appendix 2.
- Speak to the class if possible of the importance of the survey. Hand out FACCT consent packs to those pupils who have been randomly selected to participate (**please keep a record of barcode numbers (the range of barcode numbers) distributed to each class in a FACCT study notebook**). Children who were not randomly selected will receive a letter to advise parents about the random selection process and to inform them that their child was not selected. This letter is issued in the same type of envelope as the FACCT consent pack.
- Stress the importance for immediate return (next day) of all consent forms to the teacher. Speak to the class teacher about collecting the forms. Suggest that once returned, the

forms be stored in a secure location such as in a locked filing cabinet or in the principal's office.

- Arrange a date for conduct of the clinical examination. Arrange to phone the school contact a few days before the day of the survey to check the response rate.
- It would be very helpful if the school could help to encourage a good response rate by issuing a reminder to parents (paper note, global text message or email) to return the forms.

### **2.6.2. Telephone contact and posting FACCT consent packs to schools.**

If it is not possible to visit the school prior to conducting the fieldwork, the examining team will have to make arrangements by phone.

- As outlined above, it is important to emphasise the importance of the study for providing up-to-date information on children's oral health that can be used to inform oral health policy.
- An explanatory letter for the class teacher has been prepared and a copy can be found in Appendix 2.
- Ask the school to distribute the FACCT consent packs early in the week to the selected children in Junior infants and 6<sup>th</sup> class. If random selection is required, children not selected will receive a "not selected" letter in the same type of envelope as the FACCT consent pack **(please keep a record of barcode numbers distributed to each class)**.
- Stress the importance of immediate return (next day) of all consent forms to the teacher.
- Ask the school if it is possible to send a reminder to parents to return completed consent forms using the school texting system, a paper note or email.
- Phone the school 2 or 3 days before the visit to check the number of FACCT consent packs returned. If the response rate is poor, it may be necessary to visit the school to reinforce the importance of a good response rate for the study results.

Completed FACCT consent packs should be returned by the parent in the envelope provided (sealed). The sealed envelopes should be collected by the class teacher and then stored in a secure location such as in a locked filing cabinet or in the principal's office until the examining team arrive to start the fieldwork in the school.

## **3. Survey visit**

### **3.1 Health and Safety**

- The examining team should adopt safe work practices and take reasonable care of their own safety, health and welfare and that of others in line with HSE Manual Handling and People handling policy when transporting equipment to and from the car to the examination room and in setting up the examination area.
- Consideration must be given to health and safety regarding the positioning of extension leads and cables to avoid slips, trips or falls. Cables of extension leads and lights must be taped down.
- Use tables and chairs of appropriate height to allow the examining team to work as ergonomically as possible to minimise strain and fatigue.

- The recorder should observe standard health and safety procedures when working with the direct data entry system.

### 3.2 Check completion of FACCT paperwork

- When the examining team arrive at the school, they retrieve the FACCT consent packs from the principal/ secretary's office.
- The examining team open the sealed envelopes for the first group of children they intend to call (suggest groups of 2, 3 or 4 depending on the space available and the maturity of the children) and check that the parental consent, child assent (6<sup>th</sup> class only) and medical history are completed and signed. Ensure that only children with all of the completed forms are asked to come for the survey.
- The examining team should decide on the most suitable way to organise the day. They can then call to the class (with the first 2, 3 or 4 checked envelopes), and introduce themselves to the teacher. If the teacher agrees, the examining team should briefly introduce themselves to the class and explain the reason they are in the school. They can then ask the teacher to send out the first 2, 3 or 4 named children.
- Confirm the child's name and age and check that it matches the completed FACCT consent pack.
- The examiner/recorder then scans the residential history questionnaire and **notes Fluoridation status on the front of the envelope** (this is a rough indicator so we can keep track of numbers of F and NF children).
- Once these checks are completed, the child's barcode is scanned from the consent form into the direct data entry system and the child's examination commences.
- Thank the child for taking part in the study and explain briefly to the child the sequence of events: first you'll measure them, then have a look at their front teeth, take a photo and then ask them to lie on the table so that you can look at all their teeth.

#### 3.2.1. Inclusion criteria

- Completed parental consent, child assent (for 6<sup>th</sup> class children) and medical history.
- Pupil in Junior infants or 6<sup>th</sup> class in a selected school

#### 3.2.2. Exclusion criteria

- No parental consent
- No completed and signed medical history (can include if completed but not signed)
- Children who are unable or unwilling to participate on the day
- Children with any medical condition that would mean their participation in the study would pose a risk to their health or wellbeing.

## 4. Equipment

See Appendix 4

## 5. Infection Control

Standard cross infection control measures will be observed. A log of waste delivery must be maintained by each team. A copy of this log will be distributed to each team by the OHSRC. (See

Appendix 8 for further Information on setting up an exam station and handling, transporting and disposing of waste)

- Wash hands prior to commencing examinations in the school. If hand washing facilities are not available, apply an alcohol hand rub using the recommended technique. (<http://www.hse.ie/eng/services/healthpromotion/handhygiene/>).
- Change non-latex gloves before each examination.
- Change face masks once every hour, at least or sooner if moist.
- Place a disposable paper sheet under each set of instruments and change between subjects.
- Wipe light handles with disinfectant wipes between subjects.
- Place piece of tissue roll in the head area of the foam camping mat during the caries examination and change after each child.
- Wipe protective glasses with disinfectant wipes between subjects.
- Dispose of used mirrors and probes in the sharps container.
- Ensure the aperture of the sharps container is returned to the closed position after disposal and for transportation.
- Dispose of used gloves, cheek retractors, alcohol wipes, tissues, clinical sheets and headrest covers in a clinical disposal plastic bag (yellow bag).
- Return all waste to the dental clinic for disposal.
- Please keep a record of generation and disposal of yellow waste bags and sharp bins in accordance with current HSE standard operating procedures and guidance on the collection, transport and disposal of healthcare risk waste.

## **6. Sequence of activities in the school:**

**The QoL questionnaire must be completed before the clinical examination.** The sequence of activities must be standardised across all teams.

### **Tips for maintaining the correct order of QoL and clinical exam:**

- While examining the junior infants, keep a steady stream of 6th class children completing the QoL ahead of their clinical examinations. Alternatively towards the end of the junior infants exams start the 6th class children on the QoL questionnaire so they will be ready to start their clinical exam as you finish with the Junior Infants.
- Set up the QoL computer first thing in the morning and get the first 6th class child to start completing the QoL while the teams sets up for the clinical examination. The first child then progresses to the clinical examination while another child commences the QoL and this linear flow continues through the day.
- Remember that the children need to be given the instructions for completing the QoL questionnaire to read while waiting for their turn on the laptop. These instructions are part of the validated questionnaire and children must have enough time to read and understand them before being asked to complete the electronic questionnaire.

## 7. Child Oral Health-Related Quality of Life (COHRQoL) and oral health behaviours questionnaire:

- **Check that the child's consent form is signed before they commence the COHRQoL/health behaviours questionnaire.**
- The child oral health-related quality of life and oral health behaviours questionnaire should be completed on the dedicated secure laptop, before the clinical examination
- Scan the child's barcode into the device
- A member of the examining team should be available to assist any child who needs help with completing the questionnaire.
- The laptop should at all times remain in view of the fieldworkers, or another responsible adult (e.g. teacher, SNA)
- If parents are unwilling to have their child complete the survey on computer, provide the child with a paper version of the questionnaire for completion prior to their clinical examination.
- Paper versions of the survey should be used should insurmountable issues arise in relation to the laptop on a particular day, or in the case of a power cut. **Paper versions of the OHRQoL questionnaire and the clinical recording sheet will be made available for printing.**

## 8. Clinical examination

- **Non-latex gloves will be used to examine all children.**

### 8.1 Order of examination:

#### 12-year-olds:

The clinical examination will be conducted in the following order:

- Height
- Weight
- Self-perception of enamel opacities
- DDE (Developmental Defect of Enamel)
- Dean's Index
- Photograph of anterior teeth (wet and dry)
- Index of Orthodontic Treatment Need – aesthetic component (IOTN)
- Caries

#### 5-year-olds:

The clinical examination will be conducted in the following order:

- Height and Weight
- Caries

### **8.1.1 Height and Weight (all ages):**

The weighing scales will be calibrated using 75kg calibration weights in Cork by the OHSRC prior to the commencement of the study.

- Place a paper tissue on the weight and height scales and change between subjects
- Measurements of weight and height should be taken in a sensitive and confidential manner.
- Measurements (particularly weight) should not be read aloud. Note the reading on a note pad for entry into the direct data entry system

#### **Height**

1. Wipe head part of the measure with alcohol wipes between subjects
2. Ask child to remove their shoes
3. Hairstyles should allow height measure to fit comfortably on head. If necessary, ask the child to adjust their hairstyle to allow height measure to fit comfortably on head.
4. Stand with heels together against backstop
5. The spine at pelvis and shoulder level should touch the upright
6. Stand as tall as possible, unsupported and clear of any furniture
7. Position head in Frankfurt Plane position (i.e. the lower border of the left orbit and the upper margin of the external auditory meatus are horizontal)
8. Place measure on head
9. Ask child to take a deep breath in during the measurement
10. Record height in cms to one decimal point
11. Repeat to check accuracy

#### **Weight**

1. Ask child to remove any excess clothing e.g. overcoats etc
2. Remove shoes
3. Empty pockets containing keys, money, coins etc
4. Remove any heavy jewellery
5. Scales viewfinder should read (0.0) kgs
6. Instruct child to stand on scales free of any objects and walls etc.
7. Record weight to one decimal point in kgs

### **8.1.2 Self-perception of enamel opacities (age 12 only)**

Measurement of self-perceived enamel opacities will be recorded according to the procedure outlined in NHS Dental Epidemiology Programme Oral health survey of 12 year old children, 2008/9 National Protocol ([www.nwph.net/dentalhealth/](http://www.nwph.net/dentalhealth/))

**ALL** 6th class children must be asked **questions 1 AND 3**; **ONLY** ask **question 2** if they respond 'Yes' to **question 1**. Please remember the questions must be asked **EXACTLY** as shown in the coding sheet and manual; do not change the wording.

Question	Response
"Do you have any white marks on your front teeth that won't brush off? "	Yes/No/Don't know is entered into the clinical record <b>NOTE: if the child answers 'NO' to this question, skip to question 3.</b>
For those who say "Yes", the examiner then asks: "Does the appearance of these white marks bother you?"	Yes/No/Don't know is entered into the clinical record
The examiner shows three sets of photographs showing groups of teeth with varying types of appearance.  <b>All children are then asked "Thinking about white marks on teeth, do you think your front teeth look more like those in this group, or the ones in this group, or this group?"</b>	Photograph set N /Photograph set S/Photograph set A /Don't know.  You will be provided with a laminated copy of the images.

### 8.1.3 Developmental Defects of Enamel (DDE) (age 12 only)

(Teeth with bands/with bonded braces to be excluded)

#### Introduction:

The index tooth surfaces to be examined are the labial surfaces of the maxillary first pre-molar, canine and incisor teeth. You are **not** required to score DDE on lower 6s. *Reminder: recorders should enter X (excluded) as the code for both teeth in the data entry program.*

Three basic defects are recorded, demarcated opacities, diffuse opacities and hypoplastic defects. If any defects do not fall into these categories they should be scored as other defects.

The extent of defect is measured in increments of thirds. Colour images will be used as part of the training material.

Opacity is defined as a qualitative defect of enamel identified visually as an abnormality in the translucency of enamel. It is characterised by a white or discoloured (cream, brown, yellow) area but in all cases the enamel surface is smooth and the thickness of enamel is normal, except in some instances when associated with hypoplasia.

#### Clinical examination DDE

- Teeth will not be cleaned prior to the examination except for the removal of food debris with a cotton wool roll if necessary.
- Natural light will be used to examine the upper index teeth (1.4 – 2.4).
- The subject should be examined in the upright position, with the examiner facing the subject with his or her back to the light (window).
- When inspecting the teeth, the examiner should move their line of vision around. This approach will help to overcome the variability in recording due to angle of inspection and specular reflection.

- The teeth will be examined wet at the time of examination. This approach allows recording of the usual appearance of the teeth. Ask the child to lick their teeth if you find that they are drying out.
- The recorder will initiate the examination by calling out first tooth and the surface to be examined, i.e. “upper right maxillary first premolar labial”.
- The designated surface of the Index Tooth should be inspected visually for defects.
- If a hypoplastic area appears to be present it should be tactilely explored with a CPE probe to confirm the abnormality of enamel contour.
- Diagnosis will usually be readily evident where a defect is obvious. However, in other instances the most difficult decision will be whether or not an abnormality is present i.e. the examiner may be unsure whether the enamel is defective or fully within the range of normal. When in doubt the tooth surface should be scored normal. Similarly where defects are obviously not developmental in origin i.e. white spot caries, they should be scored normal. Where an abnormality is obviously present but cannot readily be classified into one of the listed categories of defects, it should be scored ‘other’ defect.
- Disregard any single defect on a surface which is less than 1 mm at its greatest width. However, record defects whose total greatest width is greater than 1 mm.
- Defects of the same type show considerable variations and it is essential they be classified with respect to the definition of the DDE Index.
- A surface is present and examined for defects provided any part of the surface has penetrated the oral mucosa. In the case of a partially erupted tooth, score the surface present as normal unless there is a defect on the erupted portion. If the patient is wearing a fixed orthodontic appliance exclude the patient from examination.
- If more than two defects occur on a surface, the two defects affecting the greatest area will be scored. For the “extent” section the total area affected by all types of defects will form the basis of the assessment.

**The codes for the DDE can be found in Appendix 5**

#### **8.1.4 Dean’s Index (age 12 only)**

(Teeth with bands/with bonded braces to be excluded)

- The subject should be examined in the upright position, with the examiner facing the subject with his or her back to the light (window).
- Natural light is to be used.
- Note the distribution pattern of any defects and decide if they are typical of fluorosis i.e. the defects in the questionable to mild scores (the most likely to occur) may consist of fine white lines or patches usually near the incisal edges or cusp tips. They are paper white or frosted in appearance and tend to fade into the surrounding enamel. They are of a generalised nature and there is usually a definite tendency to bilateral distribution. The premolars and second molars are most frequently affected followed by the upper incisors. The mandibular incisors are least affected.
- If fluorosis is present then decide on the two most severely affected teeth. Dean’s Index is scored on the condition of these two teeth. If the two teeth are not equally affected score on the less affected.



- When scoring, start at the higher end of the Index i.e. severe, and eliminate each score until you arrive at the condition present. If in any doubt the lowest score should be given.

**Criteria for Dean’s Classification System for Dental Fluorosis can be found in Appendix 6.**

### **8.1.5 Photograph of anterior teeth (age 12 only)**

Two photographs of the incisors will be taken for each subject. The digital photograph provides a permanent record of the appearance of the teeth and will be available for validation of the clinical examination post hoc. The images will also be read by a researcher blind to the child’s fluoridation status. This will help to minimize subjectivity within the grading of fluorosis of the anterior teeth and will increase the quality of the data.

The teeth will be photographed ‘wet’ to record the appearance of the teeth under normal conditions and ‘dry’ to allow detection of fluorosis at the very lowest levels of severity.

Photographs will be taken of the incisor teeth of all children, except where the following exclusion criteria apply:

- fixed orthodontic appliance present,
- severe ulceration of lips or oral mucosa,
- inability to comply with protocol,
- those showing anxiety or reluctance to comply with protocol.

If a photo cannot be taken for any of the reasons above, please stick the barcode into the photo log book and note the reason that no photo was taken.

The camera is a Canon EOS 1100D with a Sigma 105mm macro lens and Sigma EM140-DG macro ring flash for even lighting.

Always wear the camera strap around your neck when taking the photos to minimise the risk of dropping the camera, and keep your elbows tucked into your chest to support the weight of the camera and reduce shake. Hold the camera with one hand under the body of the camera and the other hand under the macro lens, taking care not to turn the lens focus ring.

Camera settings have been fixed by the OHSRC as follows:

- Manual focus
- Shutter 1/125
- F 18
- Magnification Ratio 1:1.5 (0.35 m)

Do not adjust any of these settings and take care not to turn the focus ring on the lens. [Note: If the focus ring has inadvertently turned, realign the white bar with the yellow numbers 1:1.5 or white numbers 0.35].



To get the teeth in focus, lean your body towards and away from the subject until the incisor teeth appear sharp and in focus.

Both flash and camera will go into power save/standby mode if they are left idle for some time. If you activate the camera by half-pressing the button used to take photos, the flash should also be reactivated.

#### 8.1.5.1 To Assemble the Camera

1. Ensure the flash is turned off, slide the flash onto the body of the camera and tighten ("lock")

2. Remove the lens cap



2. Screw on the flash adapter ring to the lens

3. Press in two black buttons on the sides of the ring flash to attach it to the adapter ring on the lens (bright side out), keeping the Sigma label at the 12 o'clock position

4. Turn on flash, and then turn on camera

Ideally, ambient lighting should be even and without strong light sources such as windows and overhead lights (i.e. close blinds and turn off lights where appropriate). Strong sources of ambient lighting cause reflections in the photographs and makes grading of fluorosis more difficult.



#### 8.1.6 Photographic procedure

- **Take a photo of the child's barcode.**
- Set the top LCD timer to count up to 8 seconds and the middle LCD timer screen to count up to 60 seconds in the second section. Do not start the timer.
- Seat the child and give them sunglasses to protect their eyes from the camera flash
- If the child has a lot of plaque on their front teeth, this should be wiped off with a cotton wool roll prior to the photograph being taken.
- Position the child's head so that the labial surfaces of the central incisors are perpendicular to the floor.
- Check that the child can place their teeth edge to edge - or as close to the same vertical plane as far as possible. The child is also instructed to keep their tongue curled up or away from their front teeth while adopting this position.
- Apply Vaseline to the child's lips if they are very dry
- Tell the child you are going to retract the lips and gently insert the lip and cheek retractor.
- Ask the child to adopt the edge-to-edge position
- Keep the teeth moist by wiping them with damp cotton wool at approximately 5 second intervals for approximately 20 seconds. The damp cotton wool rolls should be placed in a small disposable plastic cup to avoid cross infection. The cup and cotton wool rolls are disposed of in the yellow clinical waste bag.
- The camera field should capture the area of the upper and lower incisors only. The child's face should never be included in the image.

- The photographs are taken at approximately 30° above the incisal edge of the tooth to reduce lip shadow. In practice, this is a subjective assessment and where doubt occurs, the examiner should bear in mind that it is better to over-estimate the camera angle and be slightly steeper. The angle of the camera will be expected to fall between 30° and 45° above the incisal edge of the tooth.
- The plane that coincides with the interproximal surface between the two upper central incisors is the plane in which the camera is held. The examiner is aware that adopting a body position either to the left or right of this plane will affect the positioning of the camera. The point of focus should be within the incisal 1/3 of the anatomical crown
- While the examiner focuses the camera, the teeth are kept moist with wet cotton wool rolls as described above. When the photographer is ready, he/she gives the signal and the recorder **stops wetting the teeth**, starts the timer and stands back to allow the examiner to prepare to take the photo while counting the seconds 1, 2 3, 4 etc.
- The first photograph should ideally be taken at 8 seconds from the ready signal (acceptable error plus or minus 2 seconds).
- When the flash goes off, the assistant records the time in seconds (6, 7, 8, 9, or 10) as displayed on the count up clock, in the photographic log book.
- If the photographer is not satisfied with the photograph taken they will need to re-wet the teeth again (i.e. moisten the teeth by wiping them with damp cotton wool at approximately 5 second intervals for approximately 20 seconds.... and then take the repeat photograph ideally at 8 seconds from the ready signal (acceptable error plus or minus 2 seconds).
- The teeth are now dried with cotton wool roll, and the timer continues to count up to 60 seconds. The used cotton wool rolls should be placed in the small plastic cup and disposed of in the yellow clinical waste bag.
- The second photograph should be taken at 60 seconds from the ready signal (i.e. approx 52 seconds after the 'wet' photograph).
- When the flash goes off, the assistant records the time in seconds as displayed on the count up clock, on the child's envelope.
- If the photographer is not satisfied with the photograph they will need to retake the photograph again after drying the teeth for 60 seconds as above.
- Once the photographs have been taken **take another photo of the child's barcode.**
- The child's barcode, number of photographs taken at 8 and 60 seconds and any difficulties encountered in taking the photographs will be noted in the photographic log book. This will act as a failsafe for linking the clinical photos to the child.

If the examiner makes a mistake, e.g. by taking a photograph of the child's teeth without a prompt, this is logged in the photographic log book. Where such an error occurs, then there may be three or possibly four photographs for that subject. Do not delete the photos. If needs be, write on a separate piece of paper e.g. "error in previous photo" and photograph this statement before taking the subsequent photograph.

Any difficulties with child co-operation during the photographs and any difficulties relating to the camera or other equipment are noted in the photographic log book by the assistant.

Where the examiner is unsure about the exposure of the timed photographs, a repeat photograph is taken. When a repeat photograph is taken, the time of the repeat exposure is noted in the photographic log book.

#### 8.1.6.1 **Photographic log book:**

A photographic log book will be distributed to each team by the OHSRC.

#### 8.1.6.2 **To Disassemble the Camera**

Reverse of 8.1.5.1 above i.e.

1. Turn camera off, turn flash off.
2. Press the two black portions of the flash together to release ring flash.
3. Unscrew the flash from the body of the camera (un-“lock”).
4. Unscrew the flash adapter ring from the lens and reattach the lens cap onto the lens.
5. Place camera and flash + adapter ring in their respective separate bags.

#### 8.1.6.3 Quality control

- The image should ideally include upper and lower canine to canine teeth but at a minimum should include upper and lower incisors.
- Try to centre the image on the mid line, tuck your elbows into your body to steady the camera.
- Remember to ask the child to bite edge to edge.
- Too steep an angle may result in the child's nose being visible in the frame and foreshortening of the upper incisors-check the image and adjust your angle if necessary.

### **8.1.7 Index of Orthodontic Treatment Need (IOTN) – Aesthetic component (6<sup>th</sup> class only)**

The IOTN has two components which independently measure the need for orthodontic treatment based on aesthetic grounds and dental health grounds.

In the FACCT study, only the aesthetic component will be used to control for impact on quality of life and on perceptions of aesthetics that are due to malocclusion rather than caries or fluorosis.

The Aesthetic Component of the IOTN is measured as follows:

The child is seated upright and the examiner views the teeth from in front of the child. A set of ten special colour photographs will be used to gauge the Aesthetic Component.

- a) The anterior teeth should be rated on their dental attractiveness as seen. Stained teeth, enamel fractures and gingival inflammation should be ignored.

- b). Ask the subject to close together on their back teeth. Then retract the lips to expose the anterior teeth. The dental attractiveness is then rated using the 10-point Aesthetic Component scale, a copy of which will be provided to each examining team.
- c). The anterior teeth should be rated by the examiner on their dental attractiveness as seen. When using the Aesthetic Component scale, a ranking should be awarded for overall dental attractiveness, rather than specific morphological similarity to the photographs.

**Grades 1-4** represent no need for orthodontic treatment.

**Grades 5-7** represent a borderline need.

**Grades 8-10** represent a definite need for orthodontic treatment on aesthetic grounds.

### **8.1.8 Clinical recording of dental caries (All ages)**

(Children undergoing fixed orthodontic treatment: Exclude surfaces that are banded/covered including surfaces with bonded orthodontic brackets)

The examination for caries is largely a visual one.

Each child is asked to lie on a table covered with a foam camping mat with a clean disposable head rest cover under their head. Remember that all children **must be examined for caries lying on a table**. We need to do this so that our data are standardised and are comparable. If you wish you may suggest that children are asked to wear their school tracksuit the day the examining team visits.

The teeth are examined wet and a CPITN probe is used to remove food debris. The CPITN probe may also be used to confirm cavitation.

Dental caries is recorded at the dentine level (cavitated and non-cavitated).

Lighting is provided by a portable dental light source ('Daray' lamp). The light is clamped to the table in a position that will enable it to be angled towards the mouth. The teeth are be examined wet and a CPITN probe used to remove food debris.

The examiner should commence examinations on the upper right, upon the call of the upper right 7 by the recorder. He/she should call the status for each tooth or space following the recorder's call, from the upper right 7 (tooth number 1.7) continuing to the upper left (tooth number 2.7). The examiner should then call the status for each lower tooth or space beginning at the lower left 7 (3.7) and proceed to the lower right 7 (4.7). It should be noted that although the FDI international system of numbering teeth has been used the recorder may call 7,6 ,5 etc. to retain simplicity without causing confusion. The examiner may have to use clinical judgement regarding tooth morphology, and take into account the subject's previous dental history if doubt exists as to the correct notation for a particular tooth.

**Tooth presence codes and crown condition status codes can be found in Appendix 7**

### 8.1.9 Urgent need for care

Parents of children for whom an **urgent** need for dental treatment is noted will be notified by the examining team. Decisions about what conditions are considered urgent will be left to the discretion of the examining dentist. A letter informing the parents of an urgent need for treatment will be given to the child in a sealed envelope. A copy of this letter can be found in Appendix 3. A log record must be kept of each child considered by the examining dentist to require urgent dental treatment. The child's barcode rather than their name is used as an identifier in the log book. A log book of children requiring urgent dental care will be distributed to each team by the OHSRC.

## 9. Ensuring examiner consistency during the study

### Intra-Examiner agreement:

Each examiner will re-examine approximately 5% of junior infants and 5% of 6<sup>th</sup> class children examined during the fieldwork for weight and height and all relevant indices:

- Self-perception of enamel opacities
- DDE (Developmental Defect of Enamel)
- Dean's Index
- Index of Orthodontic Treatment Need – aesthetic component (IOTN)
- Caries
- **A repeat photograph must also be taken for the children who are in 6<sup>th</sup> class.**

Please re-examine at least 1 in 20 junior infants and 1 in 20 6<sup>th</sup> class children.

Please allow **maximum time** between child's first exam and the re-exam to minimise recall.

When taking a repeat photograph, please write "duplicate" on the barcode and photograph the barcode. This will allow Tara to easily identify the duplicate photos.

**When entering data for a duplicate exam, please remember to change exam type from N (new) to D (duplicate).**

### Suggestions for arranging to do duplicate exams:

- You could keep a running total and re-examine at least 1 junior infant and 1 6<sup>th</sup> class child in 20. This could result in no duplicate examination taking place in an entire school if the school is small and may be difficult to administer.
- Alternatively you could aim to re-examine at least 1 junior infant and 1 6<sup>th</sup> class child in each school you visit. If the sample in the school is very large you could aim to re-examine 2 juniors and 2 6<sup>th</sup> class children during your time in the school.

### Inter-Examiner agreement:

Inter-examiner agreement will be measured during the fieldwork by arranging for examiners in each study area to visit at least one school together with the gold standard examining dentist and to examine all children for relevant clinical indices.

## APPENDIX 1: Not-selected letter



Dear Parent,

Healthy teeth are important for a child's general health and well-being. FACCT (Fluoride And Caring for Children's Teeth) is an important new research study about children's oral health. The study is being conducted in Dublin, Cork and Kerry.

Your child's school is one of 278 schools that have been selected to take part in the study. Within each school, we are randomly selecting a certain number of children in Junior Infants and in 6<sup>th</sup> class to take part in the study. The number of children to be included from each class has been decided in advance. The selection of individual children is done in a random fashion (like pulling names out of a hat), and not on the basis of any information about the children.

On this occasion, your child has not been selected to take part in FACCT.

The FACCT study is a joint University College Cork/Health Services research project and is funded by the Health Research Board. If you would like more information about FACCT, please visit our website at [facct.ucc.ie](http://facct.ucc.ie) or you can contact a member of the FACCT team at 021 4901210.

Yours sincerely,

---

Professor Helen Whelton  
Director, Oral Health Services Research Centre  
University Dental School and Hospital, Cork



## APPENDIX 2: Letter to the class teacher



Dear Teacher,

Your school was randomly selected to participate in the FACCT study; an important new research study about children's oral health. FACCT stands for *Fluoride And Caring for Children's Teeth*. The FACCT study is a joint University College Cork/Health Services research project and is funded by the Health Research Board. Only children in Junior Infants or sixth class in randomly selected primary schools in Dublin, Cork and Kerry will participate in the study. The School Principal and Board of Management have kindly consented to this school's participation.

We wish to conduct the survey with the minimum of disruption to you and your class; and have a number of suggestions which we anticipate will facilitate a smooth process:

- ✓ If you would kindly distribute the forms to the selected children; in larger classes, it may be that not every child in the class is included in the random sample – in this situation we will provide a letter to the parents of those children not selected, explaining the sampling method.
- ✓ Once children and their parent/guardian have completed the forms they should return the forms to you as soon as possible for safe storage, such as in a locked filing cabinet or principal's office.
- ✓ On the day of the planned visit the survey team will collect the forms from their safe location and check them, to ensure that only children with all of the completed forms are asked to come for the survey
- ✓ Once the survey team have decided on the most suitable way to organise the day, they will call the children usually in groups of 2,3 or 4, depending on the space available and the maturity of the children.
- ✓ Children for whom an **urgent** need for dental treatment is noted will be given a letter in a sealed envelope to bring home to their parent/guardian.

Your co-operation with this project will greatly facilitate this important research and is very much appreciated. Should you require any further information regarding this project, you can speak to a member of the FACCT team on 021 4901210 or visit the FACCT website at [facct.ucc.ie](http://facct.ucc.ie).

Yours sincerely,

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Professor Helen Whelton

Director, Oral Health Services Research Centre  
University Dental School and Hospital, Cork

**APPENDIX 3: Letter notifying parent of the need for urgent dental treatment.**



Dear Parent,

Thank you for consenting to let your child take part in the FACCT study.

The FACCT team was in your child's school today and your child was seen by the study dentist.

Your child requires urgent dental treatment for \_\_\_\_\_

Please contact your child's dentist as soon as possible to seek dental care for your child.

## **APPENDIX 4: FACCT survey equipment list**

### **Transporting Equipment:**

1. Solid storage boxes (recommended but not supplied)
2. Two-wheel trolley (recommended but not supplied)

### **Weight and Height:**

1. **Height Measure:** Leicester Height Measure
2. **Digital Floor Weighing scales:** Tanaka Scale

### **Camera:**

1. Camera body
2. Lens
3. Flash
4. Battery charger for camera body
5. Spare rechargeable camera battery
6. Battery charger for flash
7. Rechargeable batteries for flash
8. 4 X spare AA batteries for flash
9. Memory card (16 G) (Not to be substituted for any reason)
10. Camera bag for camera
11. Bag for ring flash
12. Laminated camera set up guide
13. Sunglasses for child
14. Disposable cheek retractors
15. Countdown timer

### **Clinical examination:**

1. Disposable exam kits (Mirror & CPITN probe)
2. Daray lamp
  - a) Clamp
  - b) Spare bulb
  - c) Screw driver
3. Cotton wool rolls
4. Tissue rolls/packs
5. Alcohol wipes
6. Non-latex gloves
7. Face masks
8. Alcohol handrub
9. Liquid soap
10. Laminated Coding sheet
11. Laminated IOTN images
12. Laminated enamel opacities images
13. Fieldworker's manual

14. Yellow clinical waste bags
15. Domestic waste bags
16. Sharps box (for CPI probe and mirror)
17. Foam camping mat
18. Masking tape for taping down the mat

**IT Hardware:**

1. Laptop bag (One bag holds both laptops)
2. Clinical laptop (smooth external surface)
3. Power cable
4. Mouse
5. Barcode scanner
6. Questionnaire laptop (textured external surface)
7. Power cable
8. Mouse
9. Barcode scanner
10. Internet dongle (white)
11. USB drive (green) x 2
12. Password card x 2 (USB drives and password cards MUST be kept separately from the computers; the USB drive is the equivalent of a password for the Questionnaire laptop - not a standard USB drive)
13. Laminated bilingual instruction sheet for the OHRQoL/health behaviours questionnaires
14. Manuals for random number generator and direct data entry, bound together.

**Administration:**

1. Paper clinical recording forms
2. Paper OHRQoL/health behaviours questionnaires
3. Daily tally sheet
4. Photographic logbook
5. Logbook for children requiring urgent dental care
6. Log of waste disposal
7. Letter notifying the parent of need for urgent dental treatment (Appendix 3)
8. Mobile phone
9. Multi-socket extension lead x 2
10. Pens
11. Notebook
12. Some envelopes and paper (in case they are required)

## APPENDIX 5: Developmental Defects of Enamel (DDE)-Codes

Type of defect	Code	Definition
Normal	0	
Demarcated opacity	1	An opacity well demarcated from the adjacent normal enamel. It may be white, cream or yellow/brown in colour
Diffuse opacity	2	<u>Diffuse opacity</u> Irregular cloudy areas of opacity lacking well-defined margins or fine white distinct lines of opacity which follow the pattern of the perikymata. Confluence of adjacent lines may be observed.
Hypoplasia	3	<u>Hypoplasia</u> is defined as a quantitative defect of enamel visually and morphologically identified as involving the surface of the enamel (an external defect) and associated with a reduced thickness of enamel. The defective enamel may occur as (a) shallow or deep pits or rows of pits arranged horizontally in a linear fashion across the tooth surface or generally distributed over the whole or part of the enamel surface; (b) the defective enamel may occur as small or large, wide or narrow grooves; (c) in enamel over small or considerable areas of dentine.
Demarcated + diffuse	4	
Demarcated + hypoplastic	5	Combinations of hypoplasia and opacities can occur on the same tooth surface (Codes 5, 6 and 7). They may be quite distinct from each other, that is, separated by normal enamel, or as a composite lesion composed of an adjacent opacity and hypoplasia.
Diffuse + hypoplastic	6	
All 3	7	
Other	8	<u>Other defects</u> may occur which do not fulfil the specific definitions of opacity or hypoplasia, e.g. staining: These are listed under "Other defects"
Excluded	X	Deciduous teeth occupying the tooth space, unerupted, missing, heavily restored, badly decayed or fractured teeth and teeth (or tooth surfaces) which for any other reason cannot be classified for defects. This implies that these teeth will be disregarded from statistical purposes.
<b>Extent of defect</b>	<b>Code</b>	
Normal	0	
< 1/3	1	
at least 1/3 < 2/3	2	
at least 2/3	3	

## APPENDIX 6: Criteria for Dean's Classification System for Dental Fluorosis

Classification	Code	Extent of surface affected	Criteria
Normal	0		The enamel represents the usual translucent semivitriform type of structure. The surface is smooth, glossy and usually of pale creamy white colour
Questionable	1	<10%	The enamel discloses slight (<10% of surface) aberrations from the translucency of normal enamel, ranging from a few white flecks to occasional white spots. This classification is utilised in those instances where a definite diagnosis is not warranted and a classification of 'normal' not justified
Very Mild	2	10-25%	Small, opaque, paper white areas scattered irregularly over the tooth but not involving as much as approximately 25 per cent of the tooth surface. Frequently included in this classification are teeth showing no more than about 1 – 2mm of white opacity at the tip of the summit of the cusps, of the bicuspids or second molars.
Mild	3	25-50%	The white opaque areas in the enamel of the teeth are more extensive but do involve as much as 50 percent of the tooth.
Moderate	4	100%	All enamel surfaces of the teeth are affected and surfaces subject to attrition show wear. Brown stain is frequently a disfiguring feature
Severe	5	100%	All enamel surfaces are affected and hypoplasia is so marked that the general form of the tooth may be affected. The major diagnostic sign of this classification is discrete or confluent pitting. Brown stains are widespread and teeth often present a corroded-like appearance

## **APPENDIX 7: Tooth presence codes and crown condition status codes**

### Tooth Presence Code -

#### Existence of Teeth Code

A	Permanent tooth present
P	Deciduous tooth present
U	Permanent tooth unerupted or congenitally absent
E	Permanent tooth extracted due to caries
C	Deciduous tooth extracted due to caries
G	Permanent tooth extracted due to perio disease
B	Deciduous tooth extracted due to ortho
M	Permanent tooth missing due to other reasons i.e. lost due to trauma or orthodontic extractions
K	Permanent tooth extracted for reason unknown i.e. not caries or periodontal disease
R	Deciduous tooth present with a sinus tract

For subjects aged 5-years and younger when any of baab/baab are missing, use clinical judgement to decide status. If there is evidence that the tooth or teeth have been extracted due to caries, score status C.

For those aged 12-years and older where there is a space and the deciduous tooth is absent record U under Status.

#### **Preface to Surface Conditions Coding**

A condition code will be given to each surface of each tooth present. The crown has 4 surfaces; mesial, distal, buccal and lingual, in the case of incisors and canines. Premolars and molars have an extra surface (occlusal). It will be noted, some tooth codes exclude a need for surface condition coding e.g. if a tooth has been extracted or is congenitally missing the surface condition code will be left blank.

In the case of a partially erupted tooth, score all surfaces present and sound unless there is caries on the erupted portion.

If the score is the same for each surface put the condition number in the first box and draw a line through the rest. No distinction need be made between a deciduous and permanent tooth in the surface condition.

#### **Condition Status - CROWN**

The teeth will be examined visually. The CPITN probe may be used to confirm a diagnosis of cavitation to check for sealants or to remove food debris.

**Code R** - Fissure sealant: A fissure sealant is recorded to be present when it is detectable on a surface and when there is no probeable caries on the same surface.

**Code S** - No Caries

A surface should be considered sound if it shows no evidence of treated or untreated caries, or if it is at the doubtful stage. These scores will also apply in the case of defects not to be counted as caries:

- (a) white and/or chalky spots;
- (b) discoloured or rough spots;
- (c) stained pits or fissures in the enamel that catch the explorer but do not have a detectably softened floor, visibly undermined enamel or softening of the walls.
- (d) Dark, shiny, hard pitted areas of enamel in a tooth showing signs of moderate to severe fluorosis.

**Code V** - Visual Caries

Visual caries is recorded when there is definite evidence of caries into dentine, but where there is no probable cavity through the enamel. The appearance may vary but will usually look like grey or creamy white shadowing under enamel. Where there is any doubt score sound.

**Code D** - Decayed, cavity

Caries will be considered to be present in a surface when any lesion has a detectably softened floor, undermined enamel, or softened wall. On an approximal surface, the lesion must be visible and the probe point must enter a lesion with certainty. Where any doubt exists, caries should not be diagnosed as being present. It must be emphasised that clinical caries is a stage in the process of dental caries. Dental caries proceeds from a microscopic lesion, which cannot be diagnosed positively by present clinical methods, to a cavity (or clinical caries) which can be diagnosed by clinical examination. The upper limit for this category is the complete destruction of the crown. Where only roots remain for deciduous teeth, decayed is recorded only when no permanent successor has erupted.

Dental caries affecting enamel only, such as white spot lesions and other conditions similar to the early stages of caries should be deliberately excluded because they cannot be diagnosed positively and reliably.

Decayed is recorded where a surface contains a temporary filling requiring further treatment, or where a complete filling is lost. (See filled or defective filling). For a primary surface, decayed is recorded even though it is about to be exfoliated.

**Code K** - Filled **Amalgam** and Primary Decay

A surface should be classified filled and primary decay when a surface has been filled and another area is carious.

**Code L** – Filled (restoration non-amalgam) and primary decay



**Code Y - Filled *Amalgam* and Secondary Decay**

Surface should be classified filled and secondary decay when there is recurrent caries in contact with a filling.

**Code Z – Filled (Restoration non-amalgam) and secondary decay**

**Code F – Filled *Amalgam* Restoration**

Surfaces should be considered filled whenever a filling or any permanent material is present and there is no discrete or recurrent caries. A defective filling where there is no discrete or recurrent caries e.g. cracked or partly missing, is scored F with the appropriate treatment code indicating the replacement restoration required.

**Code G – Filled – Non-amalgam Restoration**

**Code C - Crowned**

All surfaces should be placed in this category if a tooth has full crown (intended total crown coverage) in a permanent material and including bridge abutments except where the reason for the crown is trauma.

**Code Q - Crowned and Decayed**

A surface should be scored as crowned and decayed when caries is contiguous with the crown.

**Code T - Trauma**

A permanent surface should be recorded 'trauma' if part of its substance is missing for reasons other than treated or untreated caries and the latter condition is not present. T is the score for all surfaces where a crown is present due to trauma.

**Code X - Excluded**

This category should be used for teeth, which cannot be properly examined (i.e. impacted teeth or teeth which have been banded for orthodontic reasons).

**Treatment Need**

Treatment need must be assessed and recorded - this is the last box for each tooth in the caries chart. *Codes are also displayed in the pane to the right of the caries chart in the direct date entry program for reference and to facilitate date entry by clicking.*

Code 0 – None (This code is used when it is considered that a tooth requires no treatment).

Code 1 - One surface restoration

Code 2 - Two surface restoration

Code 3 - Three surface restoration

#### Code 4 - Fissure sealant or preventive resin restoration

Depending on the surface coverage, these codes should be used to designate treatment required to remove caries lesions (primary or secondary) to repair trauma, or replace unsatisfactory fillings, in consideration of both function and appearance. Replacement of a filling is adjudged necessary, in the absence of untreated caries or after a condition score of 0, when there is one or more of:

- (i) A deficient margin which, in the examiner's judgement on the evidence of insertion of an explorer, or deep staining, allows leakage at least to dentine.
- (ii) An overhanging margin of a dimension at least equal to the thickness of a standard precast crown.
- (iii) A deficient contact point between normally spaced teeth or a deficient marginal ridge allowing, or facilitating food impact.
- (iv) A fracture or defect in a filling allowing leakage at least to dentine.
- (v) A discolouration or disharmony of shape or colour of an existing filling
- (vi) A clinical decision to fill in case of doubt, e.g. 'sticky fissure' or to restore tooth defects

#### Code 5 - Crown.

A decision to restore a tooth with a crown must be made by clinical judgement. Discolouration of a tooth due to trauma or a pulp condition may be a reason for restoration. Replacement of a crown is adjudged necessary in the absence of untreated caries after a condition score of 0, when there is one or more of:

- (i) A deficient margin which, in the examiner's judgement on the evidence of insertion of an explorer, or deep staining, allows leakage at least to dentine.
- (ii) An overhanging margin of a dimension at least equal to the thickness of a standard precast crown
- (iii) A deficient contact point between normally spaced teeth or a deficient marginal ridge allowing, or facilitating food impact
- (iv) A fracture or defect in a crown allowing leakage at least to dentine
- (v) A discolouration or disharmony of shape colour of an existing crown

Code - 6 Pulp treatment required due to coronal caries followed by restoration by filling

Code - 7 Pulp treatment required due to coronal caries followed by restoration with crown

Code - 8 Extraction Due to Coronal Caries. These scores are used when there is obvious pulp involvement or when more than 2/3 of tooth structure has been lost and restoration with crown is deemed inappropriate. The examiner's clinical judgement must be relied upon to select which of these scores (5,6 or 7) apply in individual cases and it is noted that there may be a consistent difference between individual examiners in different regions.

Code - W Extraction due to other reasons e.g. impacted tooth

Code - R Replacement with removable prosthesis

Code - F Replacement with a conventional fixed bridge at a later date: removable prosthesis or other as interim treatment

Code - S Replacement with resin bonded bridge

Code - V Veneers

Code - X Other treatment of the crown not covered and specifically for recontouring and repairing restorations – other treatments of the crown but treatments like scale and polish and oral hygiene instructions should not be recorded.

Code - F Replacement with a conventional fixed bridge at a later date: removable prosthesis or other as interim treatment

Code - S Replacement with resin bonded bridge

Code - V Veneers

Code - X Other treatment of the crown not covered and specifically for recontouring and repairing restorations – other treatments of the crown but treatments like scale and polish and oral hygiene instructions should not be recorded.

## APPENDIX 8: Infection Control

### Protocol for setting up exam station

1. While working on the FACCT study, the examining team should adopt safe work practices and take reasonable care of their own safety, health and welfare and that of others in line with HSE Manual Handling and People handling policy and cross contamination policy when transporting equipment to and from the car to the examination room and in setting up the examination area.
2. Consideration must be given to health and safety when positioning **tables** and **chairs** so that students can get on and off tables safely.
3. Consideration should be given to health and safety when dealing with cables. Cables should be either taped down securely or covered with a large mat so that examining team, school staff or students cannot trip over them.
4. Examination light should be well secured onto examination table.
5. PPE should be worn.
6. Proper hand hygiene needs to be observed.
7. Sharps bins should be correctly assembled signed and dated.
8. They should be kept out of reach of students and ensure temporary closure at all times.
9. Sharps bins which are three quarters full should be locked immediately and not left open until the end of the day.
10. Teams should ensure that yellow bags are secured and not allowed fall over and spill.
11. Yellow bags that are three quarters full should be closed immediately and not left open until the end of the day.
12. At the end of the day all cables should be folded neatly to prevent members of the teams tripping over them when putting them away.
13. Log to be completed at end of day signed and dated and retained for future reference.

## Handling, Transporting and disposing of waste

The examining team should adopt safe work practices and take reasonable care of their own safety, health and welfare and that of others in line with HSE Manual Handling and People handling policy when transporting sharp bins and yellow bags.

### Sharps bins:

1. Ensure size of sharps bin is suitable for the number of children being examined.
2. Ensure extra sharps bins are at hand
3. Sharps bins should be correctly assembled, dated and signed.
4. Ensure temporary closure is on at all times
5. Ensure that access to bins is restricted to healthcare team only
6. Sharps bins should be fully locked when three quarters full
7. Partially filled sharps bins should be locked at the end of each day
8. Sharps bins should be signed and dated after locking
9. Sharps bins should be placed within a rigid lockable container before being removed from the school building.
10. Container must be labelled with a sticker saying contaminated
11. Container must be amenable to cleaning
12. Container must only be transported within the boot of a car
13. Sharps bins must be taken to the nearest HSE dental clinic at the end of each working day and under no circumstances stored in a car overnight.
14. Date, signatures, number of sharps bins and clinic where bins were disposed of should be recorded as well as the name of the person transporting them on the given day.

### Yellow bags:

1. A new yellow bag should be used at the start of each day
2. Ensure extra yellow bags are available
3. Ensure that access to yellow bags is restricted to healthcare team only
4. Only clinical waste should be disposed in yellow bags
5. Yellow bags should be closed when three quarters full and secured with a labelled plastic tie
6. Partially filled yellow bags should be closed and secured at the end of each day and not reused the next day
7. Yellow bags should be placed within a rigid lockable container before being removed from the school building
8. Container must be amenable to cleaning
9. Container must be labelled with a sticker saying contaminated
10. Yellow bags must be taken to the nearest HSE dental clinic at the end of each working day and under no circumstance stored in a car overnight
11. Number of yellow bags, and location of clinic where they are being disposed as well as name of person transporting them, must be recorded.

**Please read and sign that you agree to follow the appropriate steps outlined above:**

**Examiner Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Recorder Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

