

Additional file 1 – Protocol for restoring occluso-proximal lesions using the Atraumatic Restorative Treatment (ART) [32].

1. Preparing the cavity	<ul style="list-style-type: none">• Place cotton wool rolls alongside the tooth to be treated.• Remove plaque from tooth surface with wet cotton wool pellets.• Dry the tooth surface with dry cotton wool pellets.• If necessary, make the entrance of the cavity wider with a dental hatchet.• Remove the carious dentine with excavators, until the enamel-dentine junction is caries free.• Fracture off unsupported thin enamel with the hatchet.• Clean the cavity with wet and then dry with cotton wool pellets.• Remove the caries near the pulp carefully. In this area only the completely soft and demineralized tissue must be removed.• Clean the cavity again with wet cotton wool pellets.• Complete the procedure by drying the cavity with dry cotton wool pellets.• Place a matrix strip between the teeth. This matrix must be pre-curved.• Insert a wedge to support the strip under the contact point at the gum margin. Advise the child that he/she might feel a little uncomfortable during this procedure.
2. Conditioning the cavity	<ul style="list-style-type: none">• Apply one drop of GC Cavity Conditioner liquid (GC Europe, Leuven, Belgium) on paper pad.• Dip a cotton wool pellet in clean water.• Remove excess of water from the cotton wool pellet by lightly touching against a dry cotton wool roll, tissue or gauze.• Dip the moist cotton wool pellet in the GC Cavity Conditioner liquid.• Condition the cavity and adjacent fissures with the liquid for 10–15 seconds.• Wash the cavity and fissures immediately with three sequences of cotton wool pellets, dipped in clean water.• Dry the cavity with three sequences of dry cotton wool pellets.
3. Restoring the cavity	<ul style="list-style-type: none">• Ensure that the tooth is kept dry during the restoration phase – if moisture could not be maintained, repeat Step 2.• The capsule of EQUIA Forte, capsules (GC Europe, Leuven, Belgium) should be activated and mixed. Before activation, shake the capsule or tap its side on a hard surface to loosen the powder. To activate the capsule, push the plunger until it is flush with the main body. Immediately place the capsule into a metal capsule applier and click the lever once and it will be activated. Immediately remove the capsule and set it into a mixer (or an amalgamator) and mix for 10 seconds• Remove the capsule from mixer and place into a metal capsule applier again. Make two clicks to prime the capsule. Within 10 seconds maximum after mixing, start to insert the mixture directly into the prepared cavity.• Overfill the cavity extending to pits and fissures. Extra care should be taken to avoid moisture contamination or drying out.• Place the index finger over the restorative material and press the material to accommodate to the cavity• Remove finger sideways after a few seconds• Remove visible excesses of glass ionomer cement (GIC) with a medium or large excavator• Wait 1–2 minutes till the material feels hard, whilst keeping the tooth dry• Remove matrix and wedge carefully turning the matrix the other side (adjacent tooth) and check the bite using articulation paper• Adjust the height of the restoration with the carver if necessary• Using a micro-tip applicator, apply G-Coat Plus (GC Europe, Leuven, Belgium) to the occlusal and proximal surface (using a new metallic matrix band embedded with the coating and a new wedge) of the restoration.• Light cure for 20 seconds at occlusal, 20 seconds at buccal and 20 seconds at the lingual surface. G-Coat Plus is indicated to seal and protect the surface of glass ionomer• Remove the matrix, wedge and cotton wool rolls• Child will be told not to eat for at least 1 hour after the restoration was performed. A sticker with the time at which they are allowed to eat again was placed on their t-shirt

