History
Thermoplastic retainers were first developed in the 1950's and famously described as “Invisible Retainers” by Ponitz in 1971. They fell out of favour due to reliability issues with their mechanical properties, but this changed in 1990’s with the introduction of the “Essix” materials, using plastics better suited to the properties required of retainers. This lecture will describe a contemporary, evidence-based approach to use of thermoplastic retainers.

Design
The usual, preferred, contemporary design is full coverage of the occlusion, even covering teeth that have not been aligned during the treatment, to prevent unwanted differential eruption of teeth. If teeth erupt after completion of orthodontic treatment then new thermoplastic retainers should be made to ensure all teeth are covered. The border of the retainer should be just beyond the gingival margin, ensuring that plastic flows into the area between the contact point and papilla to retain it in position.

Type of material & thickness
There are essentially 3 types of plastic used as clear plastic retainers:
- Polyethylene
- Polypropylene
- Polyurethane
Dr Littlewood will discuss the evidence supporting the use of these different plastics in different situations, including the advantages and disadvantages of each. There is some evidence to suggest that retainers made from 1mm blanks (rather than 0.75mm) will crack less.

Evidence for use – just bullet point areas that will be covered
The current best evidence in the following areas will be discussed:
- How often thermoplastic retainers should be worn?
- How to improve settling with thermoplastic retainers
- How thermoplastic retainers compare with Hawley and bonded retainers

Responsibility and retention
Wearing removable retainers requires good compliance. Dr Littlewood will discuss how patients need to be educated to take responsibility for their removable retainers, as well describing a UK national campaign to improve retainer wear called “Hold that smile.”

Simon J Littlewood, April 2018
References