

The use of digital wafer technology in orthognathic surgery

Most people who require orthodontic treatment can be treated with braces only. Some people who have problems with their bite may require a joint orthodontic/orthognathic approach (combination of braces and jaw surgery) provided by a multidisciplinary team including orthodontists, maxillofacial surgeons and technicians. During the jaw surgery, a single wafer or multiple wafers are used to position the teeth and jaws in the optimal position. Traditionally, these have been fabricated by maxillofacial technicians using a process known as model surgery, simulating the surgery on plaster models. Recently, advances in technology such as orthognathic planning software, 3D printing and intra-oral scanning, have facilitated the uptake of digital planning techniques and the use of digitally constructed wafers.

The aims of this study are to compare traditional and digital methods for wafer construction and to assess the costs and consequences associated with each technique. This research will take place at the Royal United Hospital, Bath and will determine whether using a digital workflow improves orthognathic patient care. Despite literature suggesting that virtual planning may improve the predictability of post-surgical results, there is little evidence regarding the advantages of uptake of such technology in hospital settings in the UK. This study will provide valuable information about whether final clinical outcomes are improved following adoption of the digital workflow.