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Computer Aided Precision Surgery in MSK Oncology

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The use of Computer aided planning and Navigation assistance during surgery has enabled us to achive a precision and an accuracy that was hitherto unavailable in the realm of Orthopaedic surgery.

This has translated to an accurate orientation of bony cuts, better seating of prosthetics and perhaps better long term outcomes particularly in the case of prosthetic replacements.

With specific reference to MSK oncology, precision enabled surgery has allowed us to perform an increasing number of joint sparing surgeries, particularly in the pediatric population. This necessarily means an increasing reliance on custom rather than modular prosthesis.

With the integration of advance solid modelling and visualization programs such as MIMICS® we have been able to push the envelope much further than expected. CAOS enables the sync between the surgical plan, the custom-manufactured prosthetic device and facilitates the execution of the grand idea during surgery. Multi-planar resection extreme distal joint –sparing resections and even double-joint sparing solutions have been made possible.

This presentation provides a glimpse of what has been achieved and discusses the essential software and hardware necessary for CAOS. We also discuss the difficulties and the furture developments that CAOS surgery may behold for MSK oncologyic reconstruction.