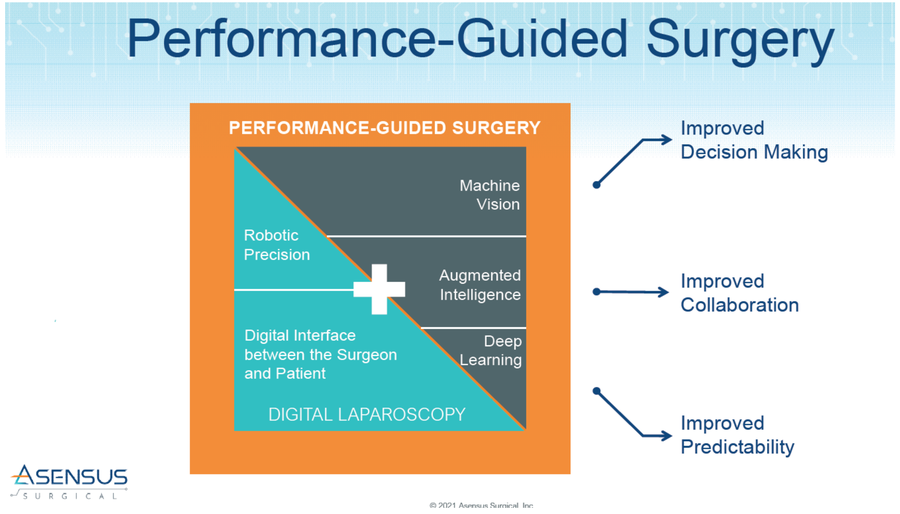
Hackensack Meridian *Health*
Pascack Valley Medical Center

Augmented Intelligence Coupled with Deep Learning will Pave the Inevitable Transition to a New Era of Robotic Surgery called PERFORMANCE-GUIDED SURGERY

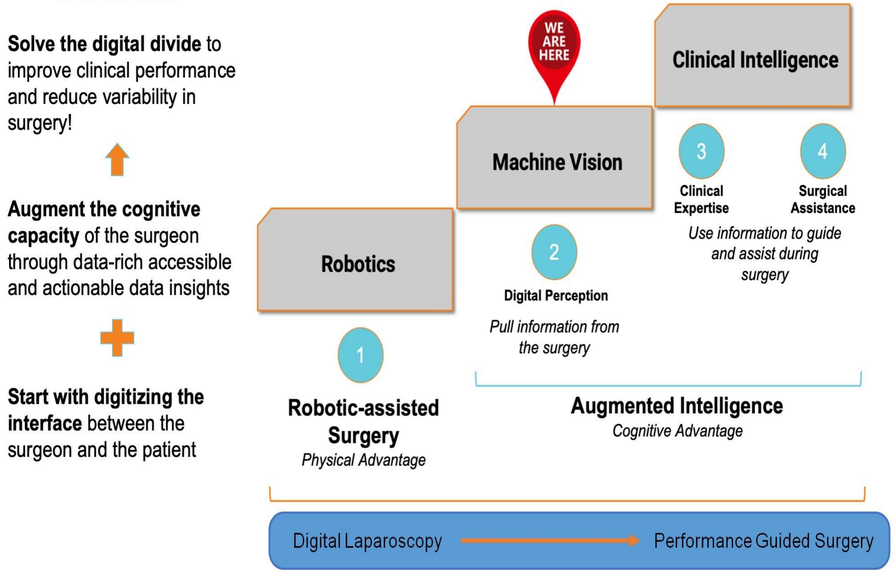
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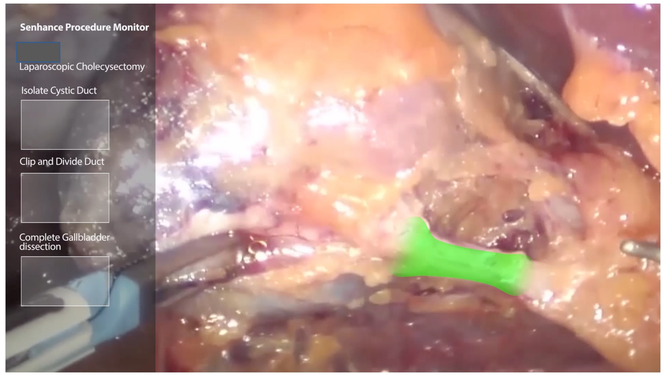
What is Performance-Guided Surgery?

Improvements in technology have fueled a transition from open surgery towards laparoscopic and robotic surgery. Despite this ongoing evolution, avoidable complications continue to occur. More recent advances in computing power have the potential to significantly reduce these avoidable complications. We now have the ability to digitize the operative field of view with robotic surgery. Digitizing the interface between the patient and the surgeon is a major step towards allowing machine vision technology to recognize structures within the operative field. This is the first step towards quantifying nearly every aspect of an operation. As data is supplied, best practice algorithms will emerge and in conjunction with machine vision, can be utilized to offer actionable real time information to the surgeon. The combination of robotic precision, a digital interface between the patient and surgeon, combined with machine vision, augmented intelligence, and deep learning is known as **PERFORMANCE-GUIDED SURGERY (PGS)**. PGS will impact the entire care continuum of the surgical patient by allowing for intelligence based pre-op preparation, perceptive real time intra-op guidance, and performance analytics in the post-op period Each case will contribute to the global database and help improve the resulting algorithms for subsequent cases.



The ability to create a digital environment that incorporates AI for robotic assisted surgery has the potential to greatly reduce avoidable complications. The current FDA approved Asensus Senhance Surgical System demonstrated is progressing towards Performance-Guided Surgery.





The Future to Come

A demonstration of the FDA approved Asensus Senhance Surgical Robotic System. This system is built from the ground up with a digital interface between the surgeon and patient and integrates augmented intelligence capabilities into the system. The currently available clinical features that use augmented intelligence such as machine vision with object recognition and machine vision camera control is shown in the above picture.