

Extract from Institute for Clinical and Economic review final appraisal document:

**ACTIVE SURVEILLANCE & RADICAL PROSTATECTOMY FOR THE
MANAGEMENT OF LOW-RISK, CLINICALLY-LOCALIZED PROSTATE CANCER**

Learning Curve: Radical Prostatectomy

There is a substantial learning curve for all forms of radical prostatectomy; cases performed by inexperienced surgeons tend to have higher rates of complications, side effects, disease recurrence, and need for subsequent treatment.

The impact of the learning curve can be observed across multiple measures of surgical outcomes. For example, the average rate of conversion from minimally-invasive to open prostatectomy due to failure of the minimally-invasive approach is less than 1%; however, rates as high as 14% have been observed among surgeons who are relatively inexperienced with the technique. Similarly, evidence from claims-based studies suggest that rates of salvage radiation or hormonal therapy after prostatectomy, treatments often indicative of positive surgical margins, are over 2 times greater among surgeons with a low volume of minimally-invasive surgeries vs. high-volume surgeons (Hu, JCO, 2008).

Given the strength of the data linking surgeon experience to broad ranges of complications and side effects, variability between surgeons and institutions is likely a more important predictor of patient outcomes than any difference that might be due to the surgical approach selected. For example, if the ranges of side effects found in the ICER systematic review are assumed to arise solely from differences in surgical expertise, a surgeon performing at the 75th percentile among his or her peers would have a combined major complication rate of approximately 2-3%, with long-term rates of ED at 30-35% and incontinence at 5-7%. These complication and side effect rates would be significantly lower than those of surgeons operating at the 25th percentile, whose patients would suffer major complications at 10-12%, ED at 50-60%, and incontinence at 15-20%. Not all of the variation in published outcomes can be ascribed to surgical expertise, but the data do suggest that variation in surgical performance is a critical feature in any evaluation of the comparative effectiveness of radical prostatectomy to active surveillance or other interventions for localized prostate cancer.