INTRODUCTION
The cell cycle progression (CCP) score and PTEN have never been evaluated together for metastasis-free survival (MFS) in a prostatectomy (RP) cohort of intermediate and high risk (IHR) prostate cancer (PCa), nor in IHR patients who also received salvage radiation (SRT) alone or with androgen deprivation (SRT+ADT). We evaluated CCP score, and PTEN in both contexts.

METHODS
Men received RP at Johns Hopkins from 2007-2015. Paraffin-embedded RP tissue was analyzed blind to outcome at Myriad Genetics for CCP score with qRT-PCR, and PTEN by immunohistochemistry. For overall evaluation of CCP and PTEN a case-cohort sample of IHR men was selected. Separately, a cohort of IHR men with biochemical recurrence who received SRT or SRT+ADT were also sampled to evaluate men at particularly high risk of metastasis. MFS was analyzed with the proportional hazards model (weighted for case-cohort design for overall analysis), adjusted for CAPRA-S, CCP, median (IQR) 0.8 (0.4-1.7), CCR, median (IQR) 3.4 (2.6-3.7), PTEN loss, n (%) 13 (42), 20 (12).

DATA: IHR CASE-COHORT
There were 41 metastasis cases and a subcohort of 174 (including 6 cases). Both groups had median age 59, and 83% were white. As expected cases had significantly higher percentage of NCCN high risk (51% vs 17%), non-organ confined tumor (89% vs 40%), and Gleason grade group 3-5 (94% vs 36%). Table 1 compares CAPRA-S, CCP, CCR, and PTEN between the groups, with cases having a higher risk profile.

DATA: IHR SALVAGE RT / RT+ADT COHORT
172 men received SRT (n=97) or SRT+ADT (75); 17 developed metastasis. Median age was similar in men with and without metastasis (59-60), and there were no significant differences in PSA, Gleason grade group, RP stage, margin status or CAPRA-S. Table 2 compares CAPRA-S, CCP, CCR, and PTEN by metastasis status; men with metastasis again exhibited higher biomarker risk profiles.

CONCLUSIONS
This is the first comparison, in a recent cohort of IHR men, of CCP and PTEN as risk factors for metastasis, and first evaluation in IHR men receiving SRT. In IHR men overall, and in IHR men who received SRT or SRT+ADT, CCP, but not PTEN, was significantly associated with MFS, adjusted for CAPRA-S. CCR, a fixed algorithm combining CCP and PTEN was also significant in both contexts, and a previously defined CCR threshold of 2.242 was validated.