The cell cycle progression (CCP) score has been shown to predict outcome after surgical intervention in various settings. The CCP score is derived from a biopsy sample and is strongly associated with clinical variables, including tumor stage and grade. We compared the CCP score to other established prognostic markers such as PSA and clinical stage to evaluate its utility in predicting disease progression.

**Background**
- The cell cycle progression (CCP) score has been shown to predict outcome after surgical intervention in various settings. The CCP score is derived from a biopsy sample and is strongly associated with clinical variables, including tumor stage and grade.
- We compared the CCP score to other established prognostic markers such as PSA and clinical stage to evaluate its utility in predicting disease progression.

**Methods**
- We evaluated the CCP score in three patient cohorts: Martinez Clinic (MC), Intermountain Healthcare (ICH), and Durham VA Medical Center (DVKM).
- The CCP score was derived from a simulated biopsy (MC) or diagnostic biopsy (DVKM) and evaluated for association with biochemical recurrence (BCR) and metastatic disease in univariable analysis and after adjusting for other clinical information.

**Results**
- In all three cohorts, the CCP score was associated with BCR and metastatic disease.
- The association with BCR remained significant after adjusting for other prognostic clinical variables.
- In a combined analysis of all three cohorts (MC, DVKM, ICH), the CCP score was a strong predictor of BCR in both univariable (HR per Interquartile Range [IQR] = 1.68 (95% CI: 1.41, 1.99), p-value < 0.001) and multivariable analysis (HR per IQR = 1.53 (95% CI: 1.28, 1.84), p-value < 0.001).
- The CCP score was the strongest predictor of metastatic disease in both univariable analysis (HR per IQR = 4.32 (95% CI: 3.41, 7.11), p-value < 0.001) and after adjusting for clinical variables (HR per IQR = 4.83 (95% CI: 2.40, 9.74), p-value < 0.01).

**Conclusion**
- The CCP score derived from a biopsy sample was strongly associated with adverse outcome after surgery.
- It was the strongest predictor of eventual metastatic disease of the tested variables including Gleason and PSA.
- These results indicate that the CCP score can be used to assess disease diagnosis to better define patient prognosis and appropriate clinical care.

**Table 1**
- **Clinical Characteristics**
  - **Variable**
  - **Number of Patients**
  - **Hazard Ratio**
  - **95% CI**
  - **p-value**

**Table 2**
- **Cox PH models of tumor to BCR (N = 582 with 166 events)**
  - **Variable**
  - **Number of Patients**
  - **Hazard Ratio**
  - **95% CI**
  - **p-value**

**Figure 1**
- Kaplan-Meier plots of A) Biochemical recurrence and B) Metastasis-free survival (N=582).