



Figure 2: Motivation for upgrading-risk based personalized biopsy decisions: To utilize patients' complete longitudinal data and results from previous biopsies in making biopsy decisions. For this purpose, we first process data using a statistical model and then utilize the patient-specific predictions for risk of Gleason upgrading to schedule biopsies. For example, Patient A (**Panel A**) and B (**Panel B**) had their latest biopsy at year one of follow-up (green vertical line). Patient A's prostate-specific antigen (PSA) profile remained stable until his current visit at year two, whereas patient B's profile has shown a rise. Consequently, patient B's upgrading-risk at the current visit (year two) is higher than that of patient A. This makes patient B a more suitable candidate for biopsy than Patient A. Risk estimates in this figure are only illustrative.