Urologist Attitudes towards Risk Prediction Tools, Electronic Health Records, and Surgical Clinical Decision Support

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Introduction: Clinical Decision Support (CDS) aims to provide users with timely, well-curated information to optimize decision-making, clinical efficiency, and health outcomes. However, despite the broad availability of computerized risk prediction tools in urology, their use and clinical impact remain limited. In this context, we sought to assess urologist attitudes toward the potential integration of these tools into Electronic Health Records (EHR) systems as surgical CDS.

Methods: We surveyed practicing urologists through the American Urological Association (AUA) Annual Census from May–September 2019. The AUA Annual Census is a large-scale national, electronically-administered survey that characterizes workforce demographics and clinical practice. We added questions on risk prediction tools, the EHR, and potential integration. These questions were adapted from existing questionnaires and refined through cognitive interviewing. Attitudinal questions were assessed on a 5-point Likert scale and compared according to urologist characteristics using bivariable and multivariable analyses.

Results: Among 2,159 respondents, 96.4% use an EHR of whom 30.5% practice in academic centers, 13.4% identify as female, and 9.7% are in rural areas. The median work experience is 18 years (IQR 8–28) with median workload of 75 patient visits/week (IQR 50-100) and 5 major surgical cases/month (IQR 2-10). Over 90% use their EHR for charting, order entry, and test results whereas 44.7% report using information provided by pop-ups or alerts. In terms of attitudes (Table), less than half agree that current use of the EHR improves clinical efficiency or patient care or find risk prediction tools to be frequently helpful. In contrast, most have positive attitudes toward the idea of automatic calculation and display of validated information on surgical risks and benefits in the EHR, particularly for decision-making and counseling. On multivariable analysis, urologists with more experience, who see more patients, and who do not currently use pop-up or alerts were less likely to have a favorable view on this potential functionality (p<0.05).

Table: Urologist Attitudes	Never	Rarely	Sometimes	Often	Always
I use validated prediction tools as part of my practice.	15.5%	18.0%	35.5%	23.4%	7.6%
I find validated prediction tools to be helpful.	11.1%	15.6%	39.5%	25.8%	8.0%
	Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree
Using the EHR increases my clinical efficiency.	24.6%	22.1%	16.8%	23.6%	13.0%
Using the EHR helps me deliver better patient care.	15.9%	17.1%	23.5%	28.4%	15.1%
If your EHR system could automatically calculate and display validated information on surgery risks and benefits at the POC:					
It would help my decision-making.	2.9%	4.7%	21.5%	46.4%	24.6%
It would aid my counseling of patients.	2.1%	3.8%	15.5%	47.4%	31.1%
It would save me time.	7.1%	10.6%	23.9%	29.6%	28.9%
It would improve patient outcomes.	4.8%	11.1%	41.6%	28.4%	14.1%

Conclusions: In a national sample of practicing urologists, less than half use validated risk prediction tools regularly or view the EHR favorably. However, most urologists believe that automated integration of these tools into the EHR could improve care, particularly for medical decision-making and risk communication. Future design and implementation will need to focus on prevailing attitudes along with physician experience and workload as potential barriers to acceptability, usability, and effectiveness.