ADVOCATES FOR ADVANCING HEALTH

MSR34

Artificial Intelligence Detection of National Clinical Practice Gaps in Hormone-Sensitive Prostate Cancer in Brazil: A Patient-Centered Framework

D. TAN [1] and M. LIM [1]

[1] Advocates For Advancing Health, Singapore

INTRODUCTION

UNMET NEED: Guidelines endorse early androgen-receptor pathway inhibitor (ARPi) intensification in hormone-sensitive prostate cancer (HSPC)[1], yet uptake in Brazil remains sub-optimal. This delays timely, guideline-concordant care and signals a value-access gap.

GAP IN CURRENT METHODS: Traditional approaches to detect practice gaps lack scale, are limited in sample size, and not optimized for quick and responsive decision making.

OBJECTIVE

To quantify national, stage and specialty-specific practice gaps in clinical management of non-metastatic (nm) and metastatic (m) HSPC using an Artificial Intelligence (AI)[2] framework that harnesses and quantifies patient-centered evidence to inform value-based access strategies.

METHODS (FIGURE. 1)

1 CAPTURE DIGITAL ACTIVITY

NEAR REAL-TIME capture of >15.7 billion (bn) anonymized non-unique digital actions analyzed over the past 90 days.

NATIONAL-LEVEL SCALE data representing >85% of all online activity in Brazil's HSPC space.

PRIVACY AND ETHICS: HIPAA, COPPA, GDPR and ISO27001 compliant.

2 IDENTIFY RELEVANT HCPs

TARGET HEALTHCARE PROFESSIONALS (HCP) were urologists (URO) and oncologists (ONC) specializing in, or with interest to treat (Tx) prostate cancer (PCa).

HCPs IDENTIFIED via probabilistic cohort modeling with independent audits validating model accuracy to 88-96%[3].

3 DETECT WHITE SPACES (WS)

AI ALGORITHM identified HCP questions and interest in HSPC topics and measured the intersection of this demand with available online resources.

WHITESPACES (WS) represent unmet information needs and were flagged as educational/ decision-support gaps. Analyses were conducted separately by stage (nm vs. m) and specialty (UROs vs. ONCs).

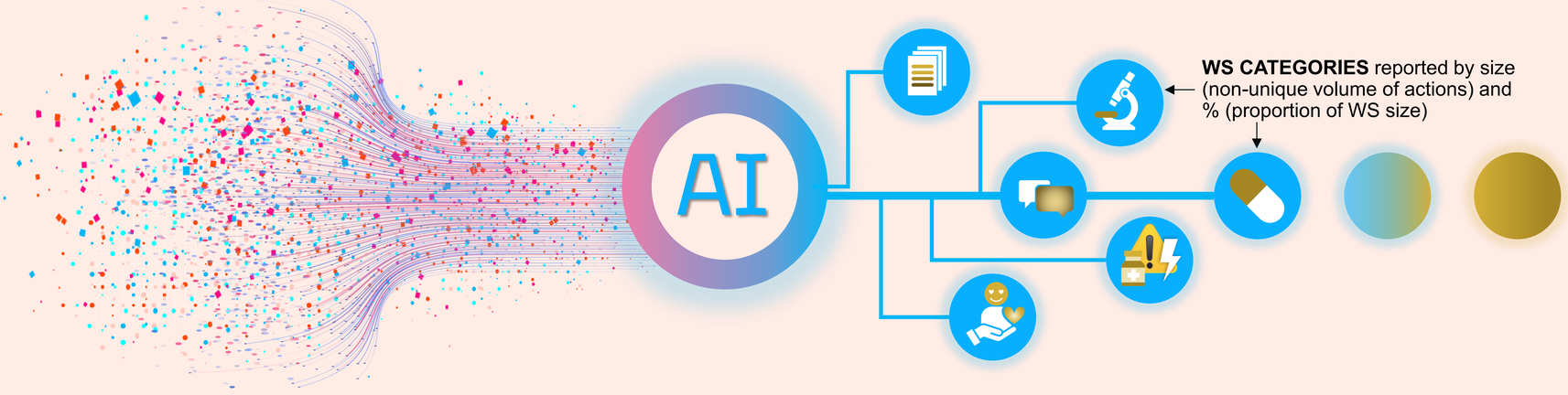
FIGURE 1: METHODS OVERVIEW[3]

From national-scale, cohort-targeted online behavior to patient-centered collaboration: near real-time identification of clinical practice gaps to inform value-based access.

NATIONAL DATA SIGNALS
Analyzed >15.7bn digital actions covering >85% of all HSPC activity in Brazil.

MODEL
Validated AI algorithm identified online actions from HCPs specializing or with interest to treat PCa and flagged unmet information needs as WS.

ACCESS LEVERS (OUTPUTS)
Multi-disciplinary team (MDT), practice-ready and workflow integrated tools designed to optimize timely access and guideline-based care.



URO-ONC ALIGNED TOOLS on staging and risk stratification to address diagnostic variability

CROSS-SPECIALTY AIDS on Tx selection, initiation, in/deinten-sification, sequencing and duration

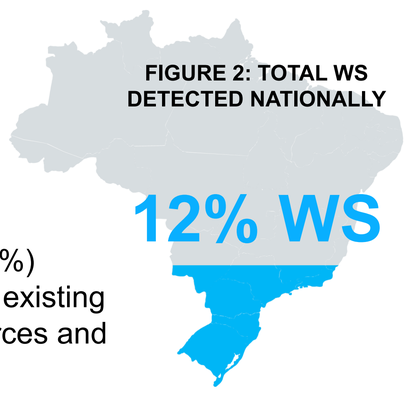
STANDARDIZED MATERIALS on AE/QoL to optimize shared decision making (SDM) across specialties

RESULTS

1 NATIONAL SCALE OF UNMET NEEDS IN HPSC

- Total of 4.4bn non-unique, HSPC-related digital actions, of which 534,111 (12%) were detected as WS.
- The remaining 3.9bn (88%) signals were matched to existing online information resources and categorized as non-WS.

FIGURE 2: TOTAL WS DETECTED NATIONALLY

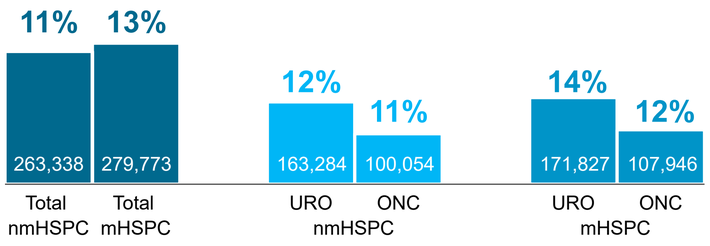


1 in 8 signals remain unmet – an actionable national gap

2 STAGE AND SPECIALITY-SPECIFIC GAPS

- mHSPC WS marginally higher (m 13% vs. nm 11%)
- UROs had more unmet needs compared to ONCs for both nmHSPC (12% UROS vs. 11% ONCs) and mHSPC (14% UROs vs. 12% ONCs)

FIGURE 3: WS BY STAGE AND SPECIALTY (% AND SIZE)

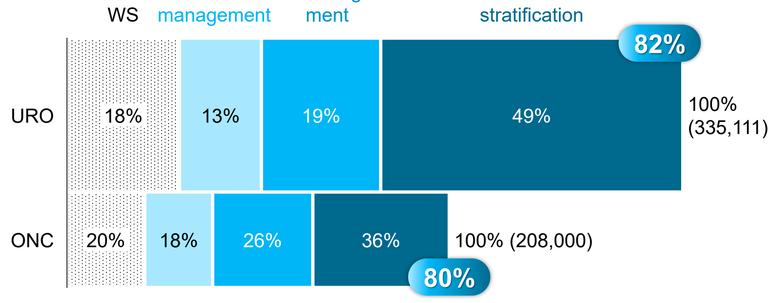


Gaps intensify at metastatic stage and are consistently larger for URO

3 Tx DECISION AND PATIENT MANAGEMENT UNMET NEEDS

- Diagnosis (Dx), Tx and patient management topics dominated unmet needs and accounted for 81% of total WS (82% UROs vs. 80% ONCs).
  - + Dx: imaging, laboratory tests, staging and risk stratification
  - + Tx management: Tx selection, intensification and deintensification
  - + Patient management: education, adverse event (AE) management and quality of life (QoL)
- Remaining 19% WS domains (see FIGURE 4 'Other WS') related to guidelines, data (clinical trial and real-world) and patient support programs.

FIGURE 4: WS BY DOMAINS AND SPECIALTY (% AND SIZE)



Substantial URO-ONC overlap indicates opportunities for MDT interventions

CONCLUSION

This AI framework detected national, specialty and stage- specific HSPC practice gaps *in near real-time and at scale*, overcoming traditional study limitations. The methodology is reproducible and adaptable across tumor types and health systems. Findings revealed gaps in Dx clarity, Tx decision and patient management as priorities for MDT collaboration and equitable access.

IMPLICATIONS

Prioritize reduction in Dx variability, support timely ARPi intensification and improve SDM; then track implementation to improve patient care.

SPECIALTY ALIGNED TOOLS
See FIGURE 1 'Access Levers' for types of decision-support tools

TRACK SUCCESS
- ☑ Tool adoption, timely intensification, improved adherence and QoL
- ☑ Iterative tool refinement

EQUITY+ SCALE
Use national signal detection to target under-served regions and specialties

LIMITATIONS

Digital, organic, open-web behavior only; excludes social /paid media and offline behaviors

90-day data aggregation window; season-al/campaign activity bias

Probabilistic HCP authentifi-cation with associated residual mis-classification

Scope limited to HSPC-relevant ONCs/UROs only; other stakeholders excluded

WS reflects information gaps ≠ Tx causality or clinical out-comes

REFERENCES
1. 2024 NCCN guidelines, 2024 EAU/European Prostate Cancer Guidelines
2. Technology vendor, Sqreem Technologies https://sqreem.com/
3. Additional information on Methods available in Supplementary Materials via QR code

DISCLOSURES AND ACKNOWLEDGEMENTS
D.TAN is Healthcare Advisor to Sqreem Technologies. We would like to thank Astellas Pharma Singapore for funding this study. The authors alone are responsible for the content and writing of this poster.

AUTHOR CONTACT

POSTER IN PDF

SUPPLEMENTARY MATERIALS

Presented at ISPOR Europe, 9-12 November, Glasgow, Scotland UK