Panel discussion – Non-metastatic prostate cancer

GUYIR 2025

Evaluation and diagnosis of prostate cancer

Artificial intelligence and radiologists in prostate cancer detection on MRI (PI-CAI): an international, paired, non-inferiority, confirmatory study

Anindo Saha, Joeran S Bosma*, Jasper J Twilt*, Bram van Ginneken, Anders Bjartell, Anwar R Padhani, David Bonekamp, Geert Villeirs, Georg Salomon, Gianluca Giannarini, Jayashree Kalpathy-Cramer, Jelle Barentsz, Klaus H Maier-Hein, Mirabela Rusu, Olivier Rouvière, Roderick van den Bergh, Valeria Panebianco, Veeru Kasivisvanathan, Nancy A Obuchowski, Derya Yakar, Mattijs Elschot, Jeroen Veltman, Jurgen J Fütterer, Maarten de Rooij†, Henkjan Huisman†, on behalf of the PI-CAI consortium‡*

Summary

Background Artificial intelligence (AI) systems can potentially aid the diagnostic pathway of prostate cancer by alleviating the increasing workload, preventing overdiagnosis, and reducing the dependence on experienced radiologists. We aimed to investiga[illegible] on MRI in comparison with rad[illegible] (PI-RADS 2.1) and the standard of

Lancet Oncol 2024; 25: 879–87

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AI algorithm non-inferior, and in fact superior, in diagnosis of clinically significant Ca P compared to radiologists

Original Reports | Pathology

Prospective Clinical Implementation of Paige Prostate Detect Artificial Intelligence Assistance in the Detection of Prostate Cancer in Prostate Biopsies: CONFIDENT P Trial Implementation of Artificial Intelligence Assistance in Prostate Cancer Detection

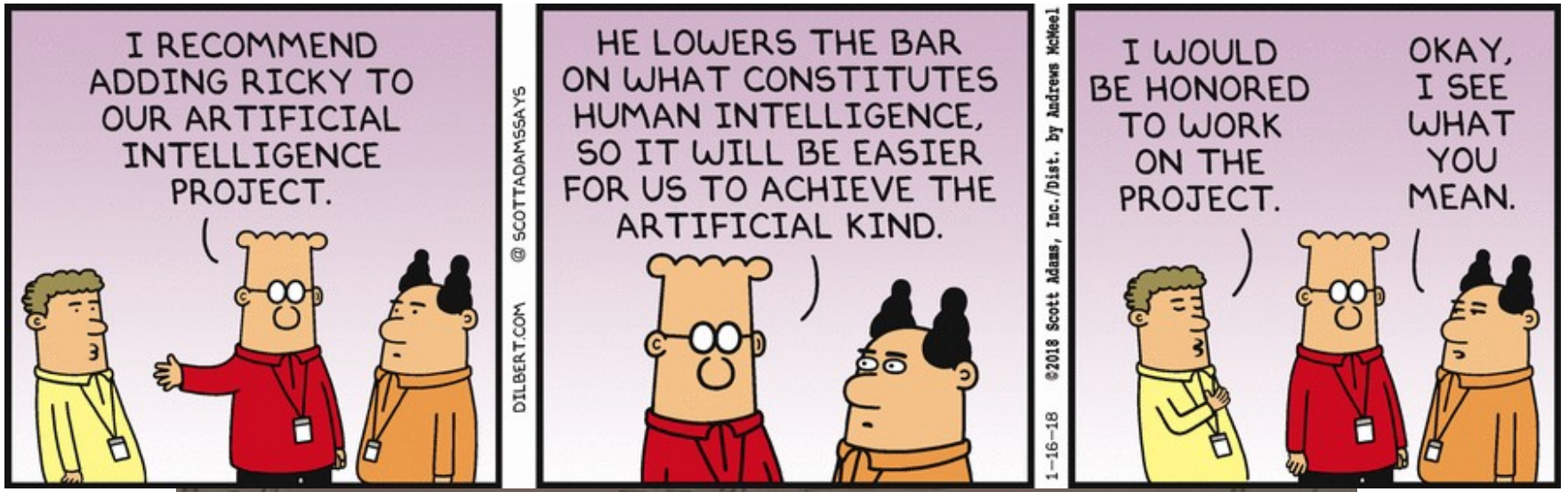
Rachel N. Flach, MD, PhD[1,2]; Carmen van Dooijeweert, MD, PhD[1]; Tri Q. Nguyen, MD, PhD[1]; Mitchell Lynch, MD[3]; Trudy N. Jonges, MD, PhD[1]; Richard P. Meijer, MD, PhD[2]; Britt B.M. Suelmann, MD, PhD[4]; Peter-Paul M. Willemse, MD, PhD[2]; Nikolas Stathonikos, MSc[1]; and Paul J. van Diest, MD, PhD[1]

DOI https://doi.org/10.1200/CCI-24-00193

AI software reduced need of IF and allowed more confidence in pathologists' diagnosis

Panel

- Do you read the MRI yourself? What are the common problems you face with MRI reporting in the community?
- Do you think AI algorithms will play an increasing role in the radiology department?
- Would it help in radiation planning as well?
- What could be the effect of bias in AI training and “automation bias”


I RECOMMEND ADDING RICKY TO OUR ARTIFICIAL INTELLIGENCE PROJECT.
HE LOWERS THE BAR ON WHAT CONSTITUTES HUMAN INTELLIGENCE, SO IT WILL BE EASIER FOR US TO ACHIEVE THE ARTIFICIAL KIND.
I WOULD BE HONORED TO WORK ON THE PROJECT.
OKAY, I SEE WHAT YOU MEAN.
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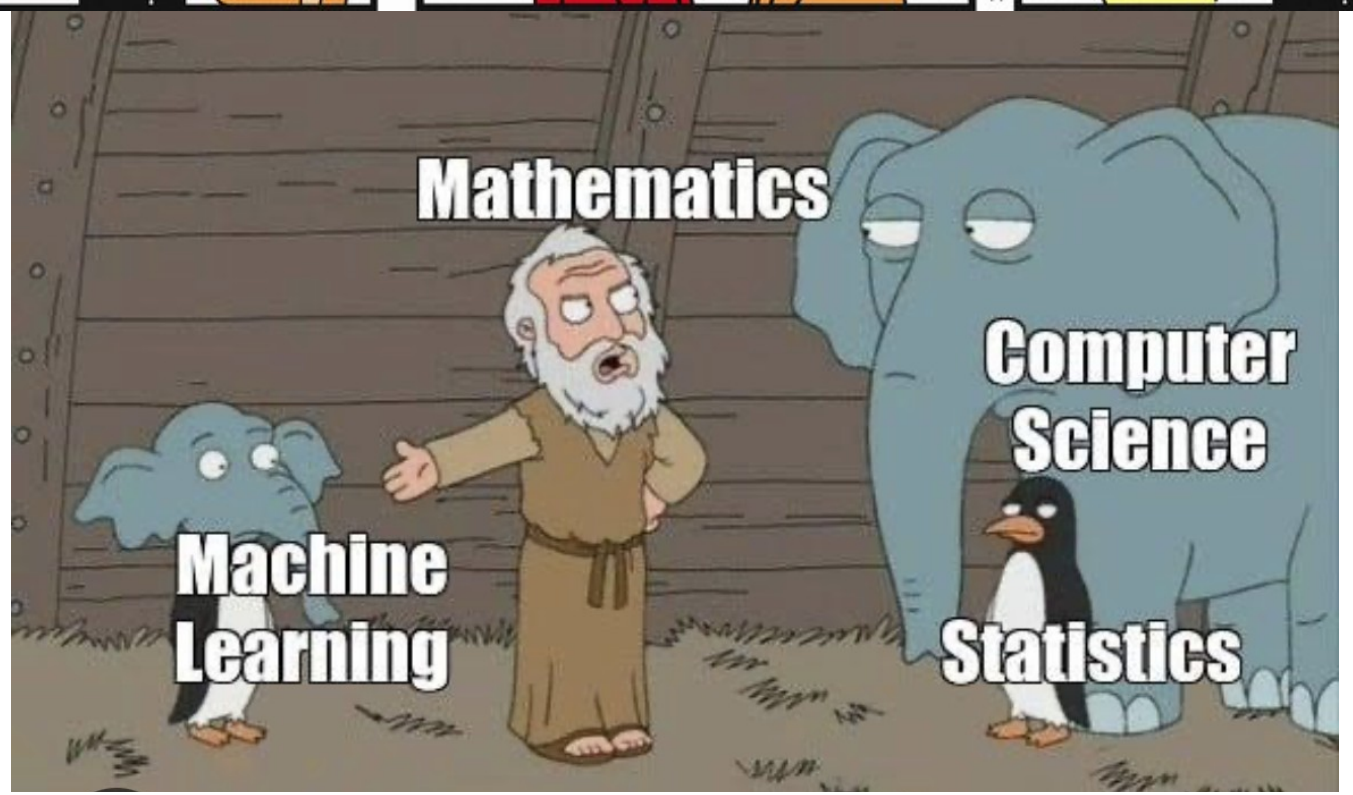

Mathematics
Computer Science
Machine Learning
Statistics

Panel

- When is IHC needed during prostate biopsy? How much is the extra cost added?
- Are any of your hospitals using the AI systems for pathology?
- What are the limitations you anticipate in the routine use of AI in pathology and radiology?

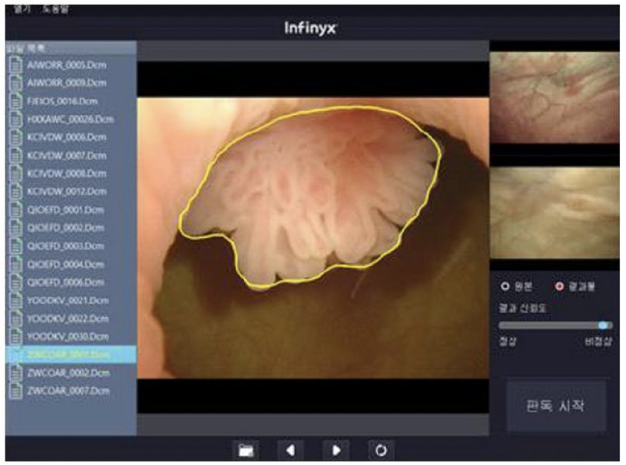
AI - Cystoscopy

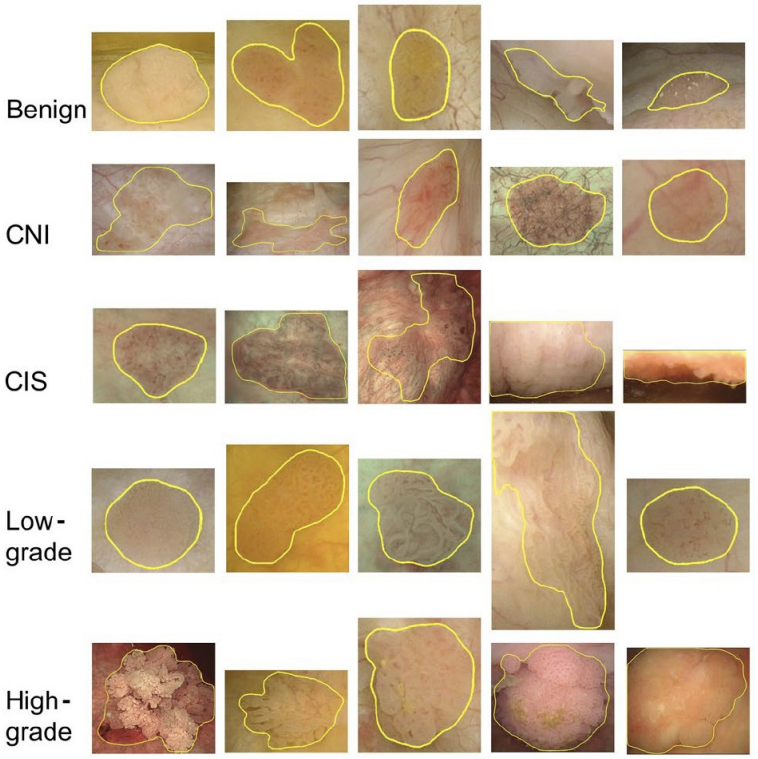
- Trained a deep neural network with >10,000 images to identify tumor and grade based on red/green/blue method on white light and NBI

scientific reports

AI - cystoscopy

- Based on tumor color AI was able to
  - Diagnose tumor (benign versus tumor)
  - Predict CIS versus inflammation
- Success rate >98%





Eric Topol
@EricTopol

So much for the lack of need for radiologists in the era of A.I.
The number of radiologists on staff @MayoClinic has grown 55% in the past 9 years @SteveLohr

From nytimes.com

8:49 PM · 15/05/25 · **27K** Views

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JU Insight

Comparing Magnetic Resonance Imaging and Prostate-Specific Membrane Antigen–Positron Emission Tomography for Prediction of Extraprostatic Extension of Prostate Cancer and Surgical Guidance: A Prospective Nonrandomized Clinical Trial

Clinton D. Bahler, Isamu Tachibana, Mark Tann, et al.

Correspondence: Clinton D. Bahler (cdbahler@iu.edu).

Full-length article available at https://doi.org/10.1097/JU.0000000000004032.

Sensitivity for PSMA PET for EPE is greater than MRI – 86% vs 57% and NPV was 95% allowing more nerve-sparing to be done

Panel

- How often do you do nerve-sparing surgery in India?
- How often do you consider it in unfavourable intermediate or high-risk disease?
- With a low PPV of 0.48 for MRI and 0.52 for PSMA in unfavourable risk would you rely more on intraop findings or consider Neurosafe in these cases?
- How important is EPE or SV involvement in radiation planning?
- Would you consider dropping MRI from staging purposes in the future?

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Prostate Cancer

JU Insight

Radical Prostatectomy Without Prior Biopsy in Selected Patients Evaluated by ^{18}F-Labeled Prostate-Specific Membrane Antigen–Ligand Positron Emission Tomography/Computed Tomography and Multiparameter Magnetic Resonance Imaging: A Single-Center, Prospective, Single-Arm Trial

Shaoxi Niu, Xiaohui Ding, Baichuan Liu, et al.

All patients with suspicious lesions on both MRI and PSMA PET CT were diagnosed with prostate cancer and underwent surgery without biopsy.

Panel

- Study showed 100% patients had prostate cancer on RP if MRI had PIRADS 4/5 and PSMA miScore 2 and above
  - PPV of 96% for MRI and 95% for PSMA alone
  - Inclusion of PIRADS-3 as positive in a previous study reduced PPV to 67%
- PSMA-PET MRI combination could be a way forward - single study has shown specificity of 94.3% and PPV of 86.8%
- PRIMARY trial suggested 100% PPV of PIRADS 4+ and SUV 9+ but only 69% if PIRADS 3+ and SUV 4+

Panel

- What problems do you face in planning or performing RARP or radiation after a prostate biopsy?
- Do you think functional outcomes after surgery might improve if biopsy was avoided?
- What happened if MRI was positive and PSMA was negative? Were there any such patients?
- For LAPC the PPV is 100% - can we consider treatment without biopsy in them?
- How will you plan active surveillance without biopsy?
- Are you comfortable offering RP or RT without biopsy given positive imaging findings? Could AI play a role here?
- Recruitment for such a trial – possible or difficult?

Treatment of prostate cancer

ORIGINAL ARTICLE

The Prostate WILEY

Ten-year functional and oncological outcomes of a prospective randomized controlled trial comparing laparoscopic versus robot-assisted radical prostatectomy

Enrico Checcucci MSc[1] | Sabrina De Cillis MD[2] | Eugenio Alladio PhD[3] | Federico Piramide MD[2] | Gabriele Volpi MD[1] | Stefano Granato MD[2] | Davide Zamengo MD[2] | Gabriele Bignante MD[2] | Daniele Amparore PhD[2] | Alberto Piana MD[2] | Matteo Manfredi MD[2] | Edoardo Vallariello[3] | Ilaria Stura[4] | Michele Di Dio MD[5] | Riccardo Autorino PhD[6] | Francesco Porpiglia MD[2] | Cristian Fiori MD[2]

Comparable continence and potency rates were observed between RARP and LRP after a 10-year follow-up. However, the RARP group exhibited superior totally dry rate and erection quality

Panel

- How many have done a laparoscopic radical prostatectomy?
- What would be the learning curve and difficulties involved in laparoscopy?
- Are you surprised with the findings of this paper?
  - >95% continence for RARP vs >80% for LRP – probably underpowered
  - Do you think early continence is better with RARP – even up to 1-2 years
  - 64% vs 56% for potency
- How do you counsel patients regarding the approach for surgery?

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Phase 3 Trial of Stereotactic Body Radiotherapy in Localized Prostate Cancer

N. van As, C. Griffin, A. Tree, J. Patel, P. Ostler, H. van der Voet, A. Loblaw, W. Chu, D. Ford, S. Tolan, S. Jain, P. Camilleri, K. Kancherla, J. Frew, A. Chan, O. Naismith, J. Armstrong, J. Staffurth, A. Martin, I. Dayes, P. Wells, D. Price, E. Williamson, J. Pugh, G. Manning, S. Brown, S. Burnett, and E. Hall

PACE-B trial - Five-fraction SBRT was noninferior to control radiotherapy with respect to biochemical or clinical failure.

Panel

- What patients do you commonly offer SBRT to?
- Have there been any changes in the delivery of SBRT since the time of recruitment of this study?
- How concerned are you about the increased GU toxicity in the SBRT group? How do we prevent them?
- Is there any reason why GI side-effects would also not be increased in SBRT?

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journal homepage: www.thegreenjournal.com

Original Article

Stereotactic body radiotherapy with a focal boost to the intraprostatic tumor for intermediate and high risk prostate cancer: 5-year efficacy and toxicity in the hypo-FLAME trial

Cédric Draulans [a,*], Karin Haustermans [a,b], Floris J. Pos [c], Uulke A. van der Heide [c], Lisa De Cock [a], Jochem van der Voort van Zyp [d], Hans De Boer [d], Robert J. Smeenk [e], Martina Kunze-Busch [e], Evelyn M. Monninkhof [f], Robin De Roover [b], Sofie Isebaert [b], Linda G.W. Kerkmeijer [d,e]

Ultra-hypofractionated focal boost SBRT is associated with encouraging biochemical control rates up to 5-year follow-up in patients with intermediate and high-risk Pca with acceptable toxicity.

Panel

- More high-risk group of prostate cancer patients – how do you tackle the lymph nodes in these cases?
- Is there any difference in the use of ADT in patients on SBRT vs standard regimens of radiation?
- Have you ever attempted the protocol described i.e. focal tumor boost?
- Do you think this will prove beneficial in cancer control in higher risk patients especially?
- Is there a worry about increasing toxicity?

11

Proffered Paper

Register data on long-term morbidity after prostate ultra-hypofractionation in the HYPO-RT-PC trial

Astrid E Persson[1,2], Elisabeth Kjellén[1,2], Hans Garmo[3,4], Gabriel Adrian[1,2], Pär Stattin[4], Anders Widmark[5], Per Nilsson[1,2], Adalsteinn Gunnlaugsson[1,2]

[1]Lund University, Department of Clinical Sciences, Divison of Oncology, Lund, Sweden. [2]Skåne University Hospital, Department of Haematology, Oncology and Radiation Physics, Lund, Sweden. [3]King's College London, Translational Oncology and Urology Research, London, United Kingdom. [4]Uppsala University, Department of Surgical Sciences, Uppsala, Sweden. [5]Umeå University, Department of Radiation Sciences, Oncology, Umeå, Sweden

- No difference in GI and GU toxicity – any surprise in the findings?

Conclusions

- Diagnosis and staging of prostate cancer will improve with the use of AI-based algorithms and studies on imaging
  - Training of the AI models has potential to introduce bias
  - Could help standardize reading MRI in a country with wide variation like India
- Potential for beginning treatment without biopsy like other cancers but due to significant treatment related toxicity it needs caution
- SBRT seems to be an increasingly used alternative for delivering RT to the prostate with good oncologic and toxicity outcomes