QP-Prostate®

Smart Reading QP-Prostate®
Quick User Guide

QP-Prostate® is a medical imaging processing application intended for image processing and analysis of prostate MRI.

The application should be used by trained medical professionals, including but not limited to radiologists, urologists, and oncologists. Patient management decisions should not be based solely on the results of **QP-Prostate®**.

1. Inclusion and exclusion criteria

1.1. Inclusion Criteria

Quibim's required acquisition protocols for the use of **QP-Prostate®** are based on PIRADS® v2 and on PI-RADS® v2.1 recommendation.

- Transverse T2-Weighted **(T2W)** sequence (1.5T or 3T)
- Diffusion Weighted Imaging **(DWI)** sequence (1.5T or 3T)

1.2. Exclusion Criteria

QP-Prostate® software has been validated with a database of MR prostate cases containing multiple imaging vendors (GE, SIEMENS, and Philips), cases of different magnetic fields (3T and 1.5T), and different nationalities (European and US cases). However, the following cases were excluded from the validations:

- Cases acquired with endorectal coil
- Patients with radical prostatectomy or excision of a large portion of the prostate prior to prostate MRI (e.g. follow-up MRI study after biopsy/excision).
- Patients with hip prosthesis or other metallic implants that might affect MRI quality.
- Patients with images that contain artifacts and for whom the radiological interpretation is not possible.
- Patients previously treated with any treatment that directly affects the radiological appearance of the prostatic tissue, such as chemotherapy, radiotherapy or brachytherapy in the prostate.

To ensure a good quality of the obtained results, we recommend that the user does not use **QP-Prostate®** for the analysis of the previous cases listed above. If they were used, the physician bears the sole responsibility for the obtained results.

2. Outputs

QP-Prostate® is seamlessly integrated with the local PACS system and run automatically. Imaging studies are pushed from the Philips Console to the cloud and results are automatically stored in PACS.

The **QP-Prostate®** outputs are accessible within the patients' folder in the PACS, appearing as a new series within the original study.

Aspects to consider

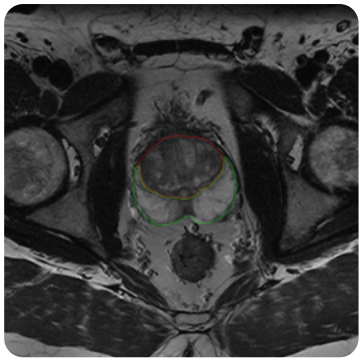
- The software does not provide a definitive diagnosis.
- The identified lesions must be reviewed by a qualified physician.
- The software does not identify lesions in the Seminal Vesicles.
- The software does not indicate if EPE (Extra – Prostatic Extension) is present.
- The maximum number of lesions detected by QP-Prostate is 4.

2.1. Prostate segmentation

QP-Prostate® segments the prostate gland with market-leading accuracy.

The software uses axT2w as input and segments three key subregions (Peripheral, Transitional+Central zones, and Seminal Vesicles, includes PI-RADS v2.1 regions, and computes prostate volume, facilitating PSA density calculations and fusion biopsy planning.

The contours are shown in every axT2w slice where prostatic tissue is present.



2.2. Lesion detection

QP-Prostate® automatically detects lesions that are suspicious of being csPCa and highlights them in a contour.

QP-Prostate® uses AI-based algorithms trained with biopsy outcomes as ground truth to detect suspicious lesions for csPCa (Gleason score ≥7).

The segmentation of the lesion is shown in 2 different colors depending on QP-Prostate's level of confidence when evaluating the lesion for csPCa.

- Orange indicates a high certainty of csPCa (similar to a PI-RADS 4 OR 5 score)
- Yellow indicates a moderate certainty of csPca (similar to a PI-RADS 3 score)