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Prostatic Disease

Impact of Negative Prostate-specific Membrane Antigen Positron Emission Tomography on the Decision to Perform a Pelvic Lymph Node Dissection During Radical Prostatectomy for Intermediate- to High-risk Prostate Cancer Patients: Results of an International Survey

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Abstract

Background and objective: Pelvic lymph node dissection (PLND) is considered the most reliable method for managing prostate cancer (PCa). However, the role of PLND remains controversial in both clinical practice and guideline recommendations. This study aims to characterize contemporary practices and attitudes related

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Keywords:
Prostate cancer
Radical prostatectomy
Lymph node dissection
Prostate-specific membrane antigen positron emission tomography
Nomogram

to extended and/or limited PLND in PCa management during radical prostatectomy (RP).

Methods: A cross-sectional survey was conducted from February to May 2025. The survey was disseminated through the official mailing lists of several prominent urological societies worldwide. Multivariable logistic regression models were used to identify the predictors of the performance and perceived benefits of PLND in high-risk PCa patients, considering clinical, institutional, and practitioner-related factors.

Key findings and limitations: Our survey of 438 urologists revealed that 80% always perform PLND in European Association of Urology (EAU) high-risk patients during RP, while 18% do so selectively and only 2.6% never do. Among high-risk, prostate-specific membrane antigen (PSMA) positron emission tomography (PET)–negative patients, 53% opt for extended PLND and 39% for standard PLND. The remaining 7.6% either undergo limited/unilateral PLND or do not receive it at all. Notably, only 22% believe in the therapeutic benefit of extended PLND in high-risk PSMA-PET–negative patients, with this proportion increasing to 47% for PSMA-PET–positive cases. The primary rationale for PLND was staging (43%), followed by detecting micrometastases (31%). Multivariable analyses showed that PLND for EAU high-risk patients during RP was independently associated with treatments performed in university/referral centers structured risk stratification following the National Comprehensive Cancer Network guidelines ,and the use of nomograms. Resource limitations, particularly concerns about hospital stays due to complications (58.9%), and reimbursement policy for PLND (30%) impacted PLND practices significantly. Key limitations of the study include a potential selection bias and mainly European responses.

Conclusions and clinical implications: Significant variability persists in PLND practices despite evolving guidelines and imaging.

Patient summary: Pelvic lymph node dissection (PLND) is a procedure in which lymph nodes are removed and examined during prostate cancer surgery (prostatectomy) to determine whether the cancer has spread. We surveyed urologists worldwide about their current use of this procedure during prostatectomy. The introduction of prostate-specific membrane antigen positron emission tomography scans has changed how doctors decide when to perform PLND. Our findings show considerable variation in practice and persistent uncertainty about its benefits, underscoring the need for further research to guide treatment decisions.

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1. Introduction

Accurate staging remains a cornerstone of effective prostate cancer (PCa) management. Pelvic lymph node dissection (PLND) is historically regarded as the most reliable method for detecting lymph node metastases. Extended PLND (ePLND) has demonstrated superior diagnostic yield to limited PLND [1,2].

The extent of PLND in PCa management remains inconsistently defined. Current European Association of Urology (EAU) and American Urological Association (AUA) guidelines describe limited (standard) dissection as a dissection procedure including nodes within the obturator fossa and beneath the external iliac vein, covering less than half of the prostate's primary drainage area. An ePLND procedure, recommended for optimal staging, encompasses the obturator, external, and internal iliac nodes, while superextended templates may additionally include presacral and common iliac nodes up to the ureteral crossing. Divergent anatomic definitions across studies—such as those by Touijer et al (external, internal, and obturator) [1,2] versus Lestingi et al (also presacral and common iliac)—have led to inconsistent node yields and outcomes [3].

However, the role of PLND, especially its therapeutic versus purely diagnostic value, remains controversial in both clinical practice and guideline recommendations [4–8]. Guidelines from leading organizations such as the EAU, AUA, and National Comprehensive Cancer Network (NCCN) provide varying recommendations on the use and template of PLND.

The EAU has recently updated its guidelines regarding PLND in PCa management [6]. Specifically, the strong recommendation for PLND in high-risk and locally advanced PCa patients has been removed. However, if PLND is performed, it is now strongly recommended to dissect an extended template.

These often depend on estimated risk stratification derived from nomograms or clinical features, such as

prostate-specific antigen (PSA) level, Gleason score, clinical staging and imaging. Nevertheless, in actual clinical settings, adherence to these guidelines may vary significantly. Factors influencing this variation include differences in institutional protocols, geographic practice norms, access to advanced imaging (eg, prostate-specific membrane antigen [PSMA] positron emission tomography [PET]), evolving evidence on the lack of survival advantage [9], and individual surgeon preferences.

The advent of PSMA PET has further complicated decision-making [10]. While PSMA PET demonstrates excellent sensitivity for detecting metastatic disease, its role in replacing or complementing PLND remains unclear [11]. Meanwhile, concerns are present for PLND-associated morbidity: up to 10% of men experience an high-grade complication, including lymphocele formation and thromboembolic events; furthermore, PLND leads to prolonged operative time. Not surprisingly, in the absence of clear survival benefits, some clinicians adopt more selective or conservative approaches, even in high-risk patients [12,13]. Recently published studies have reported potential benefits of PLND in terms of meaningful oncological outcomes [1,14]. However, none of these studies accounted for the use of PSMA-PET imaging. Despite its suboptimal negative predictive value, particularly in high-risk patients, some authors have even suggested omitting PLND in cases where PSMA PET is negative. However, this recommendation remains controversial given the current limitations of imaging in relation to exclusion of nodal involvement reliably.

Given these uncertainties and the evolving landscape of PCa staging and treatment [15], there is a pressing need to assess how urologists currently perceive and apply PLND in routine clinical practice. To date, limited data exist that capture international variability in attitudes, indications, technical execution, and the perceived clinical value of PLND. Furthermore, few studies have systematically evaluated how practice patterns align with or diverge from the existing guidelines, and how the emerging technologies are shaping clinical decision-making. To address this knowledge gap, we designed a comprehensive questionnaire to assess the perception and use of PLND for treating PCa [1,13].

2. Patients and methods

2.1. Study design and aims of the study

We performed a cross-sectional, internet-based survey study conducted to explore clinical practices, decision-making patterns, and perceptions surrounding the role of PLND in the management of PCa. The questionnaire design adhered to the principles outlined in the Checklist for Reporting Results of Internet E-Surveys (CHERRIES) framework to ensure methodological rigor and transparency [16]. The primary aim of this survey was to characterize contemporary international practices related to PLND in PCa management, with a special focus on the role of PSMA-PET imaging, including indications, extent, perceived risks and benefits, and evolving trends.

2.2. Survey development, administration, and methodological considerations

An international survey on PLND practices in PCa patients was developed and conducted between February and May 2025. The questionnaire, comprising 35 questions across six thematic domains, was created through a rigorous process of literature review, expert input, and pilot testing. Distribution occurred via urological societies and professional social media platforms. Detailed information on methodology, eligibility criteria, and ethical considerations is provided in the Supplementary material.

2.3. Data management and statistical analysis

Survey data were exported from SurveyMonkey into Microsoft Excel and SPSS Statistics (version 29.0). Descriptive statistics were planned to summarize demographic characteristics and response frequencies. Categorical variables would be presented as counts and percentages, while continuous variables would be reported as means with standard deviations or medians with interquartile ranges, depending on the distribution. Multivariable logistic regression models were developed to identify the predictors of performing PLND in EAU high-risk patients and to assess the perceived staging or therapeutic benefit of PLND in PSMA-negative or PSMA-positive findings.

3. Results

3.1. Respondent characteristics

Table 1 presents the general characteristics of the survey respondents. During the study period, we received a total of 438 complete responses. Participants represented six regions, with the highest participation from Europe (88%). Supplementary Figure 1 visually enhances country-level data as heatmaps. Most respondents practiced in teaching hospitals or key regional/national centers (54.7%), while others reported working in private practice (25.6%), major urban hospitals (14.2%), or rural/district general hospitals (5.5%). Most respondents were consultants (63.9%) or academic urologists (20.5%). More than half of the responders declared themselves to be experts (59%) in PCa management. The most frequently reported surgical approach was a robot-assisted procedure (73%), followed by laparoscopic (14%) and open (13%) techniques. No differences were found between early and late respondents across the key demographic variables such as geographic region and years of practice.

3.2. Role of imaging and PSMA-PET imaging

PSMA PET was widely accessible, with 97% of respondents reporting availability: 54.1% had access at their center, 26.6% in their city, and 17.2% in their region (Table 1). A significant majority use PSMA-PET imaging to stage patients before curative treatment. Notably, 67.6% of respondents reported using PSMA PET balanced across different risk factors (Fig. 1). Only 25.3% of respondents always base their decision to perform PLND on the PSMA-PET results. However, this percentage increases significantly to 85% for EAU

Table 1 – Demographics and urologist practices

Practice location, *n* (%)	
1. Africa	4 (0.9)
2. Asia	18 (4.1)
3. Australia and New Zealand	3 (0.7)
4. Europe	385 (87.9)
5. North America	4 (0.9)
6. South America	24 (5.5)
Role, *n* (%)	
1. Urology trainee/registrar/fellow	64 (14.9)
2. Consultant (defined as after residency)	280 (63.9)
3. Academic urologist	90 (20.5)
4. Retired	2 (0.5)
5. Other (please specify_____)	1 (0.2)
Institution type, *n* (%)	
1. Teaching hospital/key regional or national center	239 (54.7)
2. Major urban hospital	62 (14.2)
3. Rural/district general hospital	24 (5.5)
4. Private practice	113 (25.6)
PCa as main expertise, *n* (%)	353 (59)
Annual RP performed, *n* (%)	
1. None	42 (9.6)
2. 0–30 per year	163 (37.1)
3. 31–100 per year	175 39.9)
4. >100 per year	59 (13.4)
Annual primary radiotherapies for PCa, *n* (%)	
1. 0–30 per year	138 (31)
2. 31–100 per year	192 (44)
3. >100 per year	109 (25)
MDM discussion on PCa cases, *n* (%)	
1. No, we do not have MDM in my center	11 (2.5)
2. Yes, cases are routinely discussed at our institutional Multidisciplinary Meeting	319 (72.8)
3. Yes, only specific cases are discussed	108 (24.7)
Access to PSMA-PET imaging, *n* (%)	
1. At my center	236 (54.1)
2. In my city	116 (26.6)
3. In my region	75 (17.2)
4. No	11 (2.1)
Use of PSMA PET for staging, *n* (%)	
1. At my center	227 (52)
2. In my city	77 (17.6)
3. In my region	53 (12.1)
4. No	81 (18.3)
RP technique, *n* (%)	
1. Open surgery	53 (13)
2. Robotic surgery	299 (73)
3. Laparoscopic surgery	56 (14)

MDM = multidisciplinary meeting; PCa = prostate cancer; PSMA PET = prostate-specific membrane antigen positron emission tomography; RP = radical prostatectomy.
*All analyses were performed on available data.

high-risk cases. PSMA PET is used to guide the PLND template in 46% of selected cases and always in 17% of cases, indicating its growing importance in surgical planning (Fig. 1).

3.3. Preoperative stratification models for PLND decision-making

The D'Amico risk classification is used most widely (51.3% of respondents), followed by the EAU model at 36.3%. The NCCN model is used by 9.0% of respondents, while the Cambridge and CAPRA models are used less commonly at 1.8% and 0.9%, respectively (Fig. 2). Regarding nomograms used to predict the risk of lymph node invasion, the Briganti 2019 model [17] is most popular, utilized by 46.9% of respondents. The Memorial Sloan Kettering Cancer Center nomogram is the second most common, used by 20.8% of respondents. Of the respondents, 20.3% do not use any nomogram for this purpose. The new nomogram by Gandaglia et al [5,18] using PSMA-PET results is used by 9.2% of respondents, while the Amsterdam-Brisbane-Sydney nomogram is used by 1.8% (Fig. 2). Notably, genomic tests are generally underutilized in this context, with only 3.2% of respondents reporting frequent use of these tests in their practice (Fig. 2).

3.4. Rationale behind PLND: indications, guideline awareness, and use

Among urologists, 79.6% always perform PLND during RP in EAU high-risk patients, while 2.6% never perform it. The remaining 17.7% perform it in selected cases (Fig. 3).

When deciding whether to perform PLND in this selected population, multiple factors were considered. Preoperative imaging findings, in particular PET results, were most influential (81%), followed by risk stratification models (60%), nomograms (35%), T stage (49%), and PSA levels (21%). Other factors, such as surgeon experience and patient preference, also played a role in decision-making (Fig. 3).

Regarding the anatomical extent of PLND in EAU high-risk patients with preoperative negative PSMA PET, 54.3% of respondents reported the indication to perform ePLND, while 39.6% performed standard PLND, and only 1.6% conducted limited PLND (Table 2). When asked about the awareness of recent changes in the EAU guidelines regarding PLND, 81% of respondents reported being aware that the strong recommendation for performing PLND in high-risk and locally advanced cases has been removed. However, only 68% agreed with the 2024 guideline recommendation on when to perform PLND. Of the participants, 53% felt that the EAU recommendations do not give a clear message on when to perform PLND. The primary rationale for performing PLND was staging, chosen by 43.6% of respondents. This was followed by the detection of micrometastases not visible on imaging (31.2%) and therapeutic/curative intent (23.4%). Opinions on the therapeutic benefit of PLND varied based on disease characteristics and imaging results. In high-risk PCa with negative preoperative PSMA PET, only 22.5% believed it to provide a survival benefit, while 43.6% did not, and 33.9% were unsure. For high-risk, locally advanced PCa with negative preoperative PSMA PET, opinions were distributed more evenly (31% yes, 34.7% no, and 34.3% unsure). In cases with positive preoperative PSMA PET, a larger proportion (47.5%) believed in a therapeutic/survival benefit.

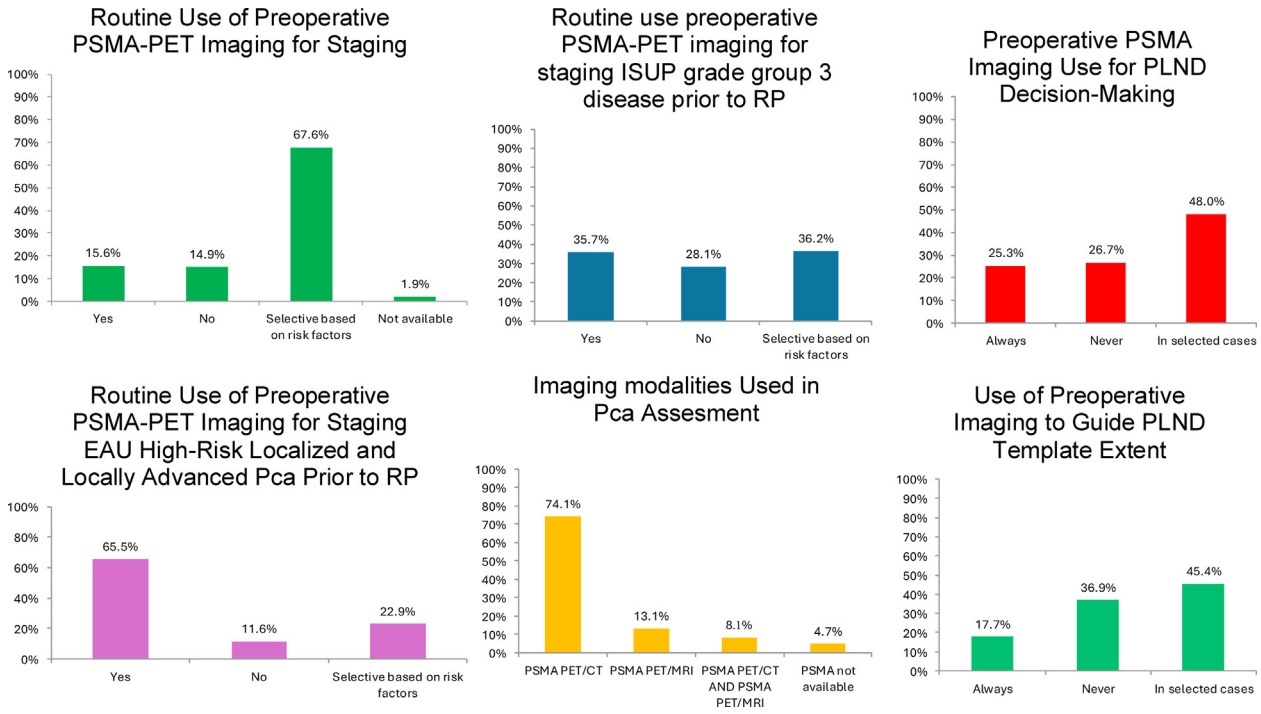

Fig. 1 – Accessibility and utilization of PSMA-PET imaging in prostate cancer staging and PLND decision-making. CT = computed tomography; EAU = European Association of Urology; ISUP = International Society of Urological Pathology; MRI = magnetic resonance imaging; PCa = prostate cancer; PET = positron emission tomography; PLND = pelvic lymph node dissection; PSMA = prostate-specific membrane antigen; RP = radical prostatectomy.

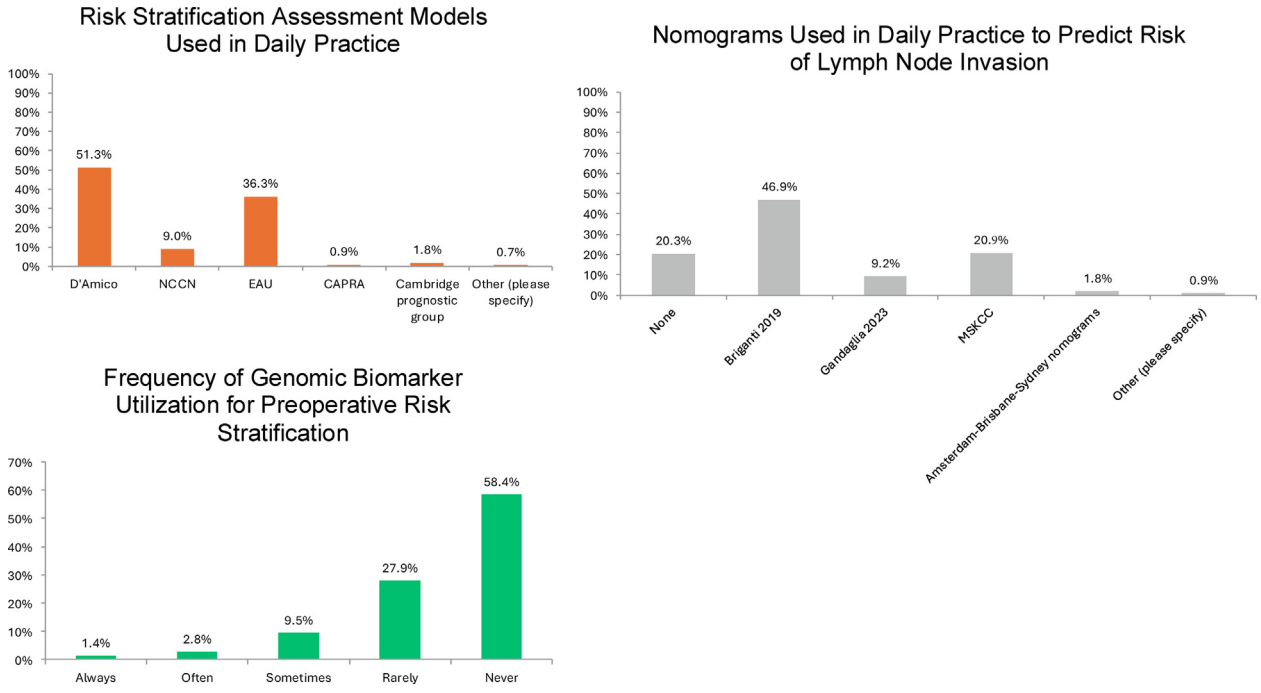

Fig. 2 – Risk stratification models and nomograms in PLND decision-making for prostate cancer. EAU = European Association of Urology; MSKCC = Memorial Sloan Kettering Cancer Center; NCCN = National Comprehensive Cancer Network; PLND = pelvic lymph node dissection.

3.5. *Influence for not performing PLND*

The most frequently cited resource limitation impacting PLND practices was hospital stay in case of complications due to PLND (61.2%), followed by a lack of availability of PSMA PET/computed tomography or PET/magnetic resonance imaging (22%).

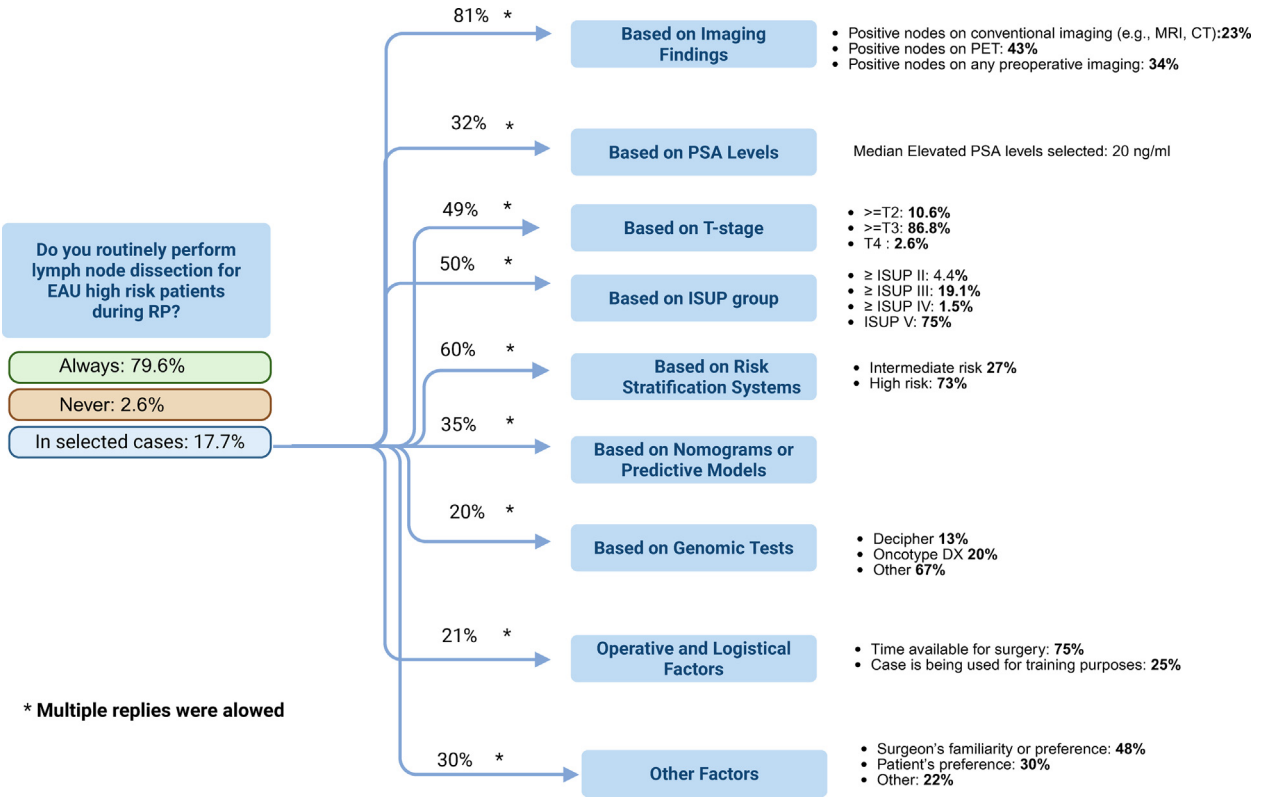

Fig. 3 – PLND practice patterns, decision factors, and perceived benefits in high-risk prostate cancer management. CT = computed tomography; EAU = European Association of Urology; ISUP = International Society of Urological Pathology; MRI = magnetic resonance imaging; PET = positron emission tomography; PLND = pelvic lymph node dissection; PSA = prostate-specific antigen; RP = radical prostatectomy. [a]Multiple replies were allowed.

3.6. Predictors of indication to perform PLND and its perceived benefit in EAU high-risk PCa patients

In the multivariable analysis, performing surgery in a university or referral center was associated with a significantly lower likelihood of PLND in EAU high-risk patients (odds ratio [OR] 0.43, 95% confidence interval [CI] 0.21–0.90, p = 0.02), while the use of nomograms (OR 2.31, 95% CI 1.25–4.29, p < 0.01) and risk stratification systems such as NCCN classifications (OR 0.2, 95% CI 0.1–0.5, p < 0.01) were independently associated with increased PLND performance. Other surgeon- or imaging-related variables, including discussion at multidisciplinary team meetings or on routine PSMA-PET use, were not significant predictors.

In PSMA-negative patients, no variable reached statistical significance, with ORs generally being close to unity, suggesting broad variability in the perceived therapeutic benefit of PLND (Table 3).

In PSMA-positive cases, hospital setting again emerged as a determinant: procedures performed in a university or referral centers were more likely to be perceived as having a therapeutic benefit (OR 1.75, 95% CI 1.01–3.04, p = 0.05). The use of stratification or nomograms did not significantly influence the perceived benefit in this group (Table 3). Multivariable results are presented as forest plots in Supplementary Figure 2.

4. Discussion

Our survey provides a contemporary snapshot of clinical practice regarding PLND, reflecting current challenges and evolving clinical perspectives, especially with the availability of novel imaging and recent guideline changes in recommendations. By capturing the perspectives of a diverse, international cohort of urologists, this study seeks to offer a snapshot of the current PLND practices and attitudes that supersedes previous questionnaires on PLND [19]. The findings may serve to highlight areas of consensus, identify gaps in knowledge translation, and inform the development of more harmonized and evidence-based recommendations in the future management of PCa.

The survey reveals that the majority of urologists perform PLND for EAU high-risk patients. The extent of PLND varies with negative PSMA-PET scans, with 53.4% opting for ePLND and 38.96% for standard PLND. The primary motivations for PLND are staging (44%), detection of micrometastases (31%), and therapeutic intent (23%).

However, opinions on the therapeutic benefits of ePLND are divided. For high-risk PCa with negative PSMA PET, only 22% believe in its benefit, while 44% do not. This belief increases for cases with positive PSMA PET.

The multifaceted rationale for performing PLND, encompassing staging, micrometastasis detection, and potential

Table 2 – Urologist indications and perspectives on pelvic lymph node dissection (PLND)

Routinely performing PLND in EAU high-risk patients during RP, *n* (%)	
1. Always	349 (79.7)
2. Never	11 (2.5)
3. In selected cases	78 (17.8)
PLND extent for EAU high-risk, PSMA-PET–negative patients, *n* (%)	
1. Limited PLND	
2. Standard PLND	4 (1.6)
3. Extended PLND	97 (39.6)
4. Superextended PLND	133 (54.3)
5. I am not performing PLND for EAU high-risk patients with negative PSMA PET	10 (4.1)
6. I am doing it monolaterally according to the site of the index lesion of the prostate	1 (0.4)
Use of radioguided PLND surgery, *n* (%)	17 (6.8)
Awareness of recent EAU guideline changes on PLND, *n* (%)	197 (81)
Agreement with 2024 EAU guideline on PLND, *n* (%)	168 (68)
Clarity of current EAU guideline on PLND, *n* (%)	113 (46)
Resource limitations impacting PLND practices (multiple choices allowed), *n* (%)	
1. Lack of PSMA PET/CT or PET/MRI availability	50 (22.0)
2. Lack of expertise in extended PLND	10 (4.4)
3. Operating room time constraints	22 (9.7)
4. hospital stay in case of complications due to PLND	139 (61.2)
5. No resource limitations	6 (2.7)
Belief in therapeutic/survival benefit of extended PLND in high-risk PCa patients with negative PSMA PET, *n* (%)	
1. Yes	53 (22.5)
2. No	103 (43.6)
3. Unsure	80 (33.9)
Belief in therapeutic/survival benefit of extended PLND in high-risk, locally advanced PCa patients with negative PSMA PET, *n* (%)	
1. Yes	73 (31.0)
2. No	82 (34.7)
3. Unsure	81 (34.3)
Belief in therapeutic/survival benefit of extended PLND in high-risk PCa patients with positive PSMA PET, *n* (%)	
1. Yes	112 (47.5)
2. No	46 (19.5)
3. Unsure	78 (33.0)
Primary rationale for performing PLND, *n* (%)	
1. Staging	190 (43.6)
2. Therapeutic/curative intent	102 (23.4)
3. Finding micrometastasis not detected with imaging	136 (31.2)
4. Other	7 (1.8)
Compensation or reimbursement for PLND, *n* (%)	
1. Yes, both institution and individual	35 (14.8)
2. Yes, only my institution	35 (14.8)
3. Yes, only individual	0
4. No	156 (66.1)
5. Prefer not to answer	10 (4.3)

CT = computed tomography; EAU = European Association of Urology; MRI = magnetic resonance imaging; PSMA PET = prostate-specific membrane antigen positron emission tomography; RP = radical prostatectomy.
*All analyses were performed on available data.

therapeutic benefits, highlights the complex decision-making process involved. This complexity is compounded further by resource limitations, particularly concerns about postoperative complications.

Our multivariable analysis, institutional setting, and structured risk stratification (eg, NCCN and Cambridge) were independent predictors of PLND indication, underscoring their possible role in guiding surgical decision-making.

The majority of respondents were aware of the updated 2024 EAU guidelines; however, a lower percentage agreed with their recommendations, with over half reporting ambiguity in the indications for PLND. This uncertainty reflects ongoing discussion, where the oncological benefit and clear indication of PLND remain debated [20,21], and the need for clearer, evidence-based guidelines to standardize PLND practices and optimize patient outcomes in high-risk PCa management.

To date, retrospective studies have failed to demonstrate a consistent survival benefit of PLND over a PLND-sparing approach during RP.

In a study by Furrer et al [14], involving 2346 patients (70% undergoing PLND), PLND was associated with a significantly lower risk of metastasis in intermediate- and high-risk PCa. However, no significant impact on overall recurrence-free survival was observed. The authors concluded that PLND should be considered for intermediate- and high-risk patients undergoing RP, but emphasized the need for randomized trials to confirm these findings and clarify the role of PLND in PCa management.

In the recently updated results of a randomized controlled trial by Touijer et al [1], 1440 PCa patients were randomized to limited PLND versus ePLND during RP. While no overall difference in biochemical recurrence–free survival was found, high-risk patients had a significantly lower risk of metastatic events with ePLND (hazard ratio [HR] 0.57, $p = 0.02$). Intermediate-risk patients also benefited (HR 0.48, $p = 0.023$). Despite these subgroup findings, the overall therapeutic benefit of ePLND remains uncertain. The authors recommend future trials comparing ePLND with no PLND, particularly to assess potential benefits in higher-risk patients.

Table 3 – Multivariable analysis of factors influencing PLND performance and perceived therapeutic benefit in EAU high-risk, PSMA-negative, and PSMA-PET–positive PCa prostate cancer patients

Parameter	Lymph node dissection for EAU high-risk patients during RP			Therapeutic benefit of PLND in in high-risk PSMA-negative patients			Therapeutic benefit of PLND in high-risk PSMA-positive patients		
	OR	95% CI	*p* value	OR	95% CI	*p* value	OR	95% CI	*p* value
Europe vs outside Europe	1.0	0.4–2.2	0.95	1.17	0.47–2.92	0.7	0.66	0.3–1.4	0.3
Hospital			0.07			0.7			0.03
Private/rural	1	Ref	–	1	Ref	–	1	Ref	–
Intermediate volume hospital	0.7	0.3–1.8	0.4	1.3	0.6–3.1	0.5	0.8	0.4–1.7	0.6
University/referral center	0.4	0.2–0.9	**0.02**	1.3	0.7–2.7	0.4	1.7	1.0–3.0	**0.05**
PCa expert (yes vs no)	0.9	0.4–1.8	0.8	1.5	0.7–3.1	0.3	1.2	0.6–1.9	0.7
Discussion at MDT (yes vs no)	1.3	0.7–2.4	0.3	1.1	0.6–2.1	0.6	1.4	0.9–2.3	0.1
Routine use of PSMA PET for staging (yes vs no)	1.5	0.9–2.8	0.1	0.9	0.5–1.8	0.9	1.1	0.7–1.8	0.6
Use of stratification			<0.01			0.9			0.3
D'Amico	1	Ref	–	1	Ref	–	1	Ref	–
EAU	0.7	0.4–1.2	0.19	0.9	0.5–1.6	0.7	0.9	0.6–1.6	0.9
NCCN	0.2	0.1–0.5	**<0.01**	1.1	0.4–2.7	0.8	0.5	0.3–1.2	0.1
Use of nomograms (yes vs no)	2.3	1.2–4.3	**<0.01**	1.2	0.6–2.3	0.6	0.8	0.4–1.4	0.5
Surgical approach			0.9			0.6			0.6
Open	1	Ref	–	1	Ref	–	1	Ref	–
Laparoscopic	1.1	0.4–3.1	0.8	0.6	0.2–1.8	0.4	1.1	0.5–2.5	0.8
Robotic	1.2	0.5–2.8	0.6	0.9	0.4–2.0	0.8	1.3	0.7–2.6	0.4

CI = confidence interval; EAU = European Association of Urology; MDT = multidisciplinary team; NCCN = National Comprehensive Cancer Network; OR = odds ratio; PCa = prostate-specific antigen; PET = positron emission tomography; PLND = pelvic lymph node dissection; PSMA = prostate-specific membrane antigen; Ref = reference; RP = radical prostatectomy.

A retrospective cohort study from the Martini-Klinik represents the only attempt to omit PLND in intermediate-risk PCa patients based solely on PSMA-PET findings. Over a median follow-up of 36 mo, no significant difference in biochemical recurrence–free survival was observed between patients who underwent PLND and those who had RP without PLND. However, the relatively short follow-up period and the small number of patients who did not undergo PLND (n = 38; 10% of the total sample) limit statistical power and preclude definitive conclusions regarding long-term oncological outcomes [22].

The widespread availability and use of PSMA-PET imaging noted in our survey underscore its significant impact on current clinical pathways. Most clinicians use PSMA PET for preoperative staging, aligning with the established superior accuracy of PSMA PET compared with conventional imaging modalities [23,24]. Although only a quarter always rely on PSMA-PET results for PLND decision-making, this figure rises sharply to 85% for patients classified as those with a high risk according to the EAU criteria, demonstrating clinical confidence in the high specificity and positive predictive value of PSMA PET for lymph node involvement [14,25]. However, its limitations, including reduced sensitivity for micrometastatic disease and small lymph node deposits, justify caution in completely abandoning PLND based solely on imaging findings [21,24].

Interestingly, despite the presence of contemporary nomograms such as Gandaglia 2023 and Amsterdam-Brisbane-Sydney nomograms [26], which incorporate PSMA-PET data for a more accurate prediction of lymph node invasion, traditional stratification tools such as D'Amico risk classification (51.3%) and Briganti 2019 (47%) remain dominant in clinical practice. Notably, 20.3% of respondents still do not use any nomogram for predicting a lymph node metastasis risk, highlighting a critical gap between evidence-based tools and clinical application.

Regarding the surgical approach, ePLND remains the predominant technique among respondents (53.4%), consistent with the guideline recommendations due to its superior nodal yield and staging accuracy [6].

The rationale for PLND was primarily staging followed by detection of micrometastases and therapeutic intent. Despite this, literature emphasizes that extended templates still miss nodal drainage areas [27], and the potential therapeutic benefit remains uncertain [1]. Furthermore, ePLND is associated with increased perioperative morbidity, such as lymphocele formation and thromboembolic complications, influencing its selective use. The primary barrier to performing PLND cited by respondents was concern over resource-intensive complications, specifically prolonged hospital stays (58.9%). This aligns with the literature emphasizing the morbidity of ePLND and the corresponding need to carefully weigh the risk-benefit ratio, particularly when advanced imaging might obviate unnecessary PLND in select patients [21].

An additional factor that may influence practice patterns is reimbursement policy. In our survey, nearly 30% of respondents reported that PLND is reimbursed at either the institutional or the individual level, which may create financial incentives or pressure to perform the procedure. These findings suggest that structural and economic drivers, in addition to clinical considerations, may contribute to heterogeneity in the use of PLND across different health care systems.

An apparent paradox emerged from our survey: while the majority of respondents perform PLND routinely during radical prostatectomy, only a minority believe that it provides a direct therapeutic benefit. This discrepancy likely reflects the multifactorial rationale underlying PLND in contemporary practice. Beyond potential oncological value, PLND continues to be regarded as the most accurate staging tool and remains recommended by international guidelines

for selected risk groups. In addition, medicolegal considerations, institutional policies, and the perceived need to guide adjuvant treatment decisions may influence surgeons to maintain PLND as part of standard surgical management. These findings highlight the complex interplay between evidence-based medicine, guideline adherence, and pragmatic clinical behavior in daily practice. As emphasized recently by critiques of the evidence-based medicine movement [28], guideline adherence does not automatically equate to evidence-based practice, particularly when the therapeutic advantage of ePLND remains uncertain. In this context, performing or omitting PLND may represent divergent interpretations of limited evidence rather than true deviations from best practice. Moreover, as noted by Morizane et al [29], the absence of a uniform anatomical definition of ePLND—ranging from obturator only to inclusion of internal, external, and common iliac stations—further complicates both adherence assessments and comparative outcome analyses. Addressing these conceptual and anatomical inconsistencies is essential to contextualize current practice heterogeneity and inform future standardization efforts.

The key limitations of this study include a potential bias from academic center-dominated responses, European over-representation, and self-reporting. A selection bias and the inability to calculate true response rates due to open-access distribution are noted. The exploratory nature of regression analyses and a lack of detailed institutional workflow information warrant cautious interpretation. A full list of limitations is provided in the Supplementary material.

A trial designed to evaluate the impact of omitting lymph node dissection in unfavorable intermediate-risk PCa, such as the NODE pilot study [30] and the forthcoming PSMA SELECT randomized controlled trial [31], will be pivotal in clarifying the role of ePLND in the PSMA-PET era. The present descriptive survey highlights the current attitudes toward omitting PLND in PSMA-negative cases. However, the findings do not support clinical recommendations or prescriptive conclusions, serving instead as a basis for future research.

5. Conclusions

Our survey reveals significant variability in PLND practices during RP, with divergent opinions on its extent and benefit in high-risk PCa. While staging remains the primary rationale, resource limitations and complication concerns impact its use. Reimbursement policies may also contribute to practice heterogeneity. Clearer guidelines and further research are needed to standardize PLND practices in PCa management in the PSMA era.

Author contributions: Fabio Zattoni had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

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Analysis and interpretation of data: Zattoni.
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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.euros.2025.12.003.

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