

Key performance indicators for organized risk stratified prostate cancer screening in Europe: first results from the PRAISE-U and EUCanScreen pilots and the Swedish organised prostate cancer testing programme

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Article

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Abstract

Background. Prostate cancer (PCa) is the most frequently diagnosed cancer in men in the European Union. Following the 2022 Council Recommendation to evaluate organised screening based on prostate-specific antigen (PSA) testing and magnetic resonance imaging (MRI), PRAISE-U defined 21 harmonised key performance indicators (KPIs). We report their first empirical values from the five PRAISE-U pilots and, through a common survey, from EUCanScreen pilots and the Swedish organised prostate cancer testing (OPT) programme.

Methods. In PRAISE-U, men aged 50–69 years at five pilot sites in Spain, Lithuania, Poland and Ireland were invited to risk-stratified screening comprising PSA testing, first-level risk stratification, MRI for intermediate or high risk and selective biopsy, with prospective capture in a central REDCap database. EUCanScreen pilots and the Swedish organised prostate cancer testing (OPT) programme reported the same KPIs through an online survey.

Results. Twelve programmes reported KPI values. Across the five PRAISE-U pilots, participation ranged from 7.1% to 43.0%, PSA exceeded 3 ng/ml in 9.2–15.0%, and compliance was 76.4–96.0% for first-level risk assessment, 89.9–98.3% for MRI and 78.9–99.0% for biopsy. Detection ranged from 8 to 26 per 1,000 screened in PRAISE-U and from 4.3 to 28 across all programmes. ISUP grade 1 accounted for 20.3–81.4% of cancers, active-surveillance uptake for 14.8–100%, and mean time from PSA result to MRI for 19–114 days; external values fell broadly within the PRAISE-U ranges. Thirteen of 21 KPIs were fully reported by all five pilots, all describing the diagnostic pathway; retention and the three impact indicators were reported only by Sweden, which reported 19 of 21.

Conclusions. Diagnostic-pathway KPIs were measurable under pilot conditions, whereas programme-level indicators required a defined target population or registry linkage. Sweden, the only population-based programme, reported retention and long-term impact, identifying the infrastructure needed before organised PCa screening can be monitored at scale.

Introduction

Prostate cancer (PCa) is the most commonly diagnosed cancer in men in the European Union (EU), with incidence and mortality varying two- to three-fold between Member States [1, 2]. Twenty-three-year follow-up of the European Randomised Study of Screening for Prostate Cancer confirms a reduction in PCa mortality among men invited to PSA-based screening [3]. A recent Cochrane review emphasises the accompanying overdiagnosis and overtreatment [4]. Risk stratification and pre-biopsy MRI allow clinically significant disease to be detected with fewer biopsies and less overdiagnosis [5–7]. In December 2022 the Council of the EU recommended that Member States evaluate organised PCa screening using PSA combined with MRI [8]. PRAISE-U implemented a common risk-stratified algorithm at five pilot sites [9, 10], and the EUCanScreen Joint Action, working with the competent authorities of participating Member States, launched a second wave of pilots [11].

Organised screening is defined by its capacity to monitor performance and act on it [12]. Without standardised key performance indicators (KPIs), programmes cannot be compared, quality targets cannot be set and harms cannot be weighed against benefits [13, 14]. PRAISE-U defined 21 KPIs covering the continuum from invitation to impact [15]. Throughout this paper we distinguish diagnostic-pathway KPIs, derivable from clinical records, from programme-level KPIs - coverage, retention, opportunistic testing and impact - which require a defined target population, a longitudinal identifier or registry linkage. Companion papers report the pilots' protocol, readiness, MRI capacity and scalability [9, 16–18].

We report the first empirical values of the 21 KPIs at the end of the 12-month PRAISE-U screening phase and, uniquely, the same indicators collected through a common survey from the EUCanScreen pilots and the Swedish OPT programme, referred to hereafter as the external programmes.

Methods

Screening pathway

The PRAISE-U algorithm adapts the European Association of Urology risk-adapted early detection strategy for population-based delivery [6, 9]. Men aged 50–69 years are invited for PSA testing, with re-invitation after five years below 1 ng/ml and after two years at 1–3 ng/ml. Above 3 ng/ml, first-level risk stratification uses the Rotterdam Prostate Cancer Risk Calculator or PSA density; men at intermediate or high risk proceed to MRI, with second-level stratification for PI-RADS 3 and biopsy for PI-RADS $\geq$ 4. Ireland delivered the first PSA test through a mailed capillary-blood kit. Site adaptations are described elsewhere [9, 18].

Data sources

PRAISE-U pilots. Individual-level data were captured prospectively in a REDCap database hosted by the European Association of Urology and managed by Erasmus MC. Aggregate KPIs were compiled after the 12-month intervention phase at each site.

External programmes. An online survey listing the 21 KPIs with their agreed numerators and denominators [15] was circulated to the coordinators of the EUCanScreen PCa screening pilots, which operate with the competent authorities of participating Member States, and to the Swedish OPT programme, an associate partner of PRAISE-U. Respondents provided values for the most recent complete reporting period available to them, indicated whether each KPI could be calculated as defined, with modification or not at all, and described programme status. Reporting periods were therefore not synchronised with the 12-month PRAISE-U round: Swedish values are cumulative to 31 December 2025 [19, 20]. In Czech Republic, men are offered screening within routine care rather than through addressed invitations, so KPIs 1–3 cannot be computed [21].

Key performance indicators

The 21 KPIs, their numerators and denominators are reproduced in Supplementary Table 1. They include invitation (KPIs 1–2), screening and risk assessment (KPIs 3–11), further risk assessment (KPIs 12–13), diagnosis, treatment and follow-up (KPIs 14–17, 21) and impact (KPIs 18–20). KPI 5 is reported across three PSA strata, KPIs 6, 7 and 13 as sub-indicators, KPI 11 as three intervals and KPI 16 by ISUP grade group; the false-positive rate (KPI 7) is the complement of the positive predictive value on the same denominator.

Analysis

KPI values are reported as programme-specific proportions, rates per 1,000 screened (KPI 15), rates per 100,000 (KPIs 18–19) or mean days (KPI 11). Given differences in eligibility, protocol and maturity, results are presented descriptively.

Ethics

PRAISE-U was approved by the IARC Ethics Committee (IEC 23–25, 3 July 2023) and by the competent committee at each site and is registered at ClinicalTrials.gov (NCT06424275); participants gave written informed consent. The survey collected aggregate programme data only.

Results

Programmes and status

Fifteen programmes described their status (Table 1) and twelve returned KPI values (Table 2). All five PRAISE-U pilots, began in 2024, targeted men aged 50–69 years and had completed recruitment with follow-up ongoing. Among the nine EUCanScreen initiatives who responded, the Lithuanian national programme has operated since 2006 and Czech Republic launched an ongoing national programme in 2024 [21]; Estonia and Piedmont (Italy) had completed recruitment, while Foggia (Italy), Heidelberg (Germany), the Basque Country (Spain), Lombardy (Italy) and Slovenia [22] were recruiting. The Swedish OPT programme has operated in 18 of 21 regions since 2020 for men aged 50–74 years [20].

Table 1 Status of the fifteen prostate cancer screening programmes and pilots contributing									
Initiation year	Manresa, Spain P	Galicia, Spain P	Ireland P	Vilnius - Lithuania P	Lower Silesia, Poland P	Lithuania national E	Czech Republic E	Estonia E	Piedmont, Italy E
	2024	2024	2024	2024	2024	2006	2024	2024	2025
Status	Recruitment complete; follow-up ongoing	Recruitment complete; follow-up ongoing	Recruitment complete; follow-up ongoing	Recruitment complete; follow-up ongoing	Recruitment complete; follow-up ongoing	Ongoing programme	Ongoing programme	Recruitment complete	Recruitment complete
Target age (years)	50–69	50–69	50–69	50–69	50–69	50–70	50–69	50–69	55–65
Recruitment target / invited	5,509	12,000	7,950	10,291	52,995	Entire eligible population	Entire eligible population	12,000	15,000
P PRAISE-U pilot; E EUCanScreen pilot; A PRAISE-U associate partner.									

Table 2
Key performance indicator values by programme

KPI	Indicator	Althaia, Spain	Galicia, Spain	Ireland	Vilnius, Lithuania	Lower Silesia, Poland	Czech republic	Estonia	Piedmont, Italy	Foggia, Italy	Basque Country, Spain	Lombardy, Italy
1	Invitation coverage	-	-	-	-	-	-	-	-	-	-	-
2	Participation rate	43.0%	42.0%	18.0% ^a	23.0%	7.1%	-	28.0%	18.8%	24.1%	40.0%	8.7%
3	Examination coverage	-	-	-	-	-	-	-	-	5.6%	-	-
4	Retention rate	-	-	-	-	-	-	-	-	-	-	-
5.1	PSA < 1 ng/ml	50.5%	51.7%	45.7%	43.4%	42.0%	54.9% ^b	54.6%	47.5%	36.8%	43.9%	53.3%
5.2	PSA 1–3 ng/ml	39.7%	39.1%	41.4%	44.9%	42.6%	33.9% ^b	38.4%	43.5%	30.7%	44.5%	30.1%
5.3	PSA > 3 ng/ml	10.0%	9.2%	13.0%	12.0%	15.0%	8.6% ^b	7.0%	9.0%	32.3%	12.4%	16.6%
6.1	PPV - any PCa	8.3%	16.1%	9.4%	15.5%	16.9%	9.8%	12.0%	9.1%	8.7%	7.2%	-
6.2	PPV - csPCa	4.3%	12.7%	4.7%	2.9%	6.4%	-	5.6%	7.9%	7.8%	2.9%	-
7.1	False positive - any PCa	91.7%	83.9%	90.6%	84.5%	83.1%	-	88.0%	90.9%	91.3%	92.8%	-
7.2	False positive - csPCa	95.6%	87.3%	95.6%	97.1%	93.6%	-	94.4%	92.1%	92.2%	97.1%	-
8	Opportunistic testing	-	-	-	-	-	-	-	87.4%	-	-	-
9	Compliance with risk assessment	95.7%	96.0%	76.4%	79.1%	88.6%	64.7%	71.8%	85.1%	-	-	58.2%
10	Complications	0.0%	0.0%	0.0%	0.0%	0.1%	-	-	-	-	0.0%	-
11.1	PSA result to MRI (mean days)	26	45	114	61	31	-	64	-	34	19	-
11.2	MRI to histopathology (mean days)	36	65	77	-	69	-	-	-	131	73	-
11.3	Histopathology to treatment (mean days)	54	52	42	69	166	-	-	-	-	-	-
12	Compliance with MRI	97.1%	98.3%	89.9%	95.8%	90.5%	-	93.1%	82.7%	73.6%	47.3%	57.4%
13.1	PI-RADS 1–2 (PSA < 10)	57.3%	27.2%	60.3%	28.4%	29.4%	-	36.8%	80.9%	75.3%	42.6%	-
13.2	PI-RADS 3 (PSA < 10)	4.5%	23.1%	10.3%	29.4%	22.1%	-	5.7%	4.4%	5.5%	21.3%	-
13.3	PI-RADS 4–5 (PSA < 10)	38.2%	49.7%	29.3%	42.2%	48.5%	-	35.6%	14.8%	14.2%	36.1%	-
14	Compliance with biopsy	97.2%	99.0%	78.9%	90.9%	90.9%	-	92.9%	78.5%	75.0%	53.7%	14.9%
15	Detection rate (per 1,000 screened)	8	15	12	18	26	8	8	8	28	9	-
16.1	ISUP grade group 1	47.4%	20.3%	50.0%	81.4%	62.2%	-	53.6%	13.6%	10.6%	59.3%	-
16.2	ISUP grade group 2	42.1%	56.8%	41.7%	9.3%	25.5%	-	21.4%	63.6%	36.8%	22.2%	-
16.3	ISUP grade group 3	5.3%	17.6%	0.0%	9.3%	7.1%	-	14.3%	18.2%	36.8%	14.8%	-
- = not available; *Swedish results are cumulative for the entire population to 31 December 2025; csPCa = clinically significant PCa (ISUP ≥ 2); a: participation based on enrolment (1,666/9,450; 17.6%), while 984 men (10.4%) returned a valid PSA result; b 2.6% had missing PSA results; c ISUP grades 4–5 combined.												

KPI	Indicator	Althaia, Spain	Galicia, Spain	Ireland	Vilnius, Lithuania	Lower Silesia, Poland	Czech republic	Estonia	Piedmont, Italy	Foggia, Italy	Basque Country, Spain	Lombardy, Italy
16.4	ISUP grade group 4	5.3%	2.7%	0.0%	0.0%	2.0%	-	7.1%	4.5%	15.8%	0.0%	-
16.5	ISUP grade group 5	0.0%	5.4%	8.3%	0.0%	3.1%	-	3.6%	0.0%	0.0%	3.7%	-
17	Compliance with treatment	100.0%	98.6%	100.0%	100.0%	62.2%	-	96.4%	86.4%	15.8%	70.4%	-
18	Crude incidence (per 100,000)	-	-	-	-	-	-	-	-	-	-	-
19	PCa mortality (per 100,000)	-	-	-	-	-	-	-	-	-	-	-
20	Interval cancer rate	-	-	-	-	-	-	-	-	-	-	-
21	Active surveillance uptake	77.8%	33.3%	100.0%	94.3%	14.8%	-	92.9%	100.0%	15.8%	92.9%	-
- = not available; *Swedish results are cumulative for the entire population to 31 December 2025; csPCa = clinically significant PCa (ISUP ≥ 2); a: participation based on enrolment (1,666/9,450; 17.6%), while 984 men (10.4%) returned a valid PSA result; b 2.6% had missing PSA results; c ISUP grades 4–5 combined.												

Invitation and participation (KPIs 1–4)

Invitation coverage (KPI 1) and examination coverage (KPI 3) could be reported only for programme setting, where a defined target population existed - Sweden (22.3% and 10% respectively). Other sites operated as a pilot/feasibility project. Participation (KPI 2) varied six-fold within PRAISE-U, from 7.1% in Lower Silesia and 18.0% in Ireland to 23.0% in Lithuania, 42.0% in Galicia and 43.0% in Manresa; in Ireland 1,666 men (17.6%) enrolled and 984 (10.4%) returned a valid home-collected sample. Externally, participation ranged from 8.7% in Lombardy to 45.0% in Sweden. Retention (KPI 4) was reported only by Sweden, where 73.1% of men eligible for re-screening returned.

Screening and risk assessment (KPIs 5–11)

The PSA distribution (KPI 5) across PRAISE-U sites ranged from 42.0% to 51.7% for PSA < 1 ng/ml, 39.1% to 44.9% for 1–3 ng/ml and 9.2% in Galicia to 15.0% in Lower Silesia for > 3 ng/ml; externally, positivity ranged from 4.9% in Sweden to 32.3% in Foggia. (Fig. 1)

The positive predictive value of PSA > 3 ng/ml (KPI 6.1) ranged from 8.3% in Manresa to 16.9% in Lower Silesia for any PCa and from 2.9% in Lithuania to 12.7% in Galicia for clinically significant disease (KPI 6.2); externally 7.2–16.2% and 2.9–10.9%. Correspondingly, 83.1–91.7% of screen-positive men in PRAISE-U had no cancer detected (KPI 7.1) and 87.3–97.1% no clinically significant cancer (KPI 7.2).

Opportunistic testing (KPI 8) was quantified by Piedmont only (87.4%). Compliance with first-level risk assessment (KPI 9) was 95.7–96.0% at the Spanish sites, 88.6% in Lower Silesia, 79.1% in Lithuania and 76.4% in Ireland, and 58.2–97.6% externally. Complications (KPI 10) were ≤ 0.1% wherever reported.

Mean time from PSA result to MRI (KPI 11.1) was 26 days in Manresa, 31 in Lower Silesia, 45 in Galicia, 61 in Lithuania and 114 in Ireland, where home sampling and clinic visit added additional step; externally it ranged from 19 days in the Basque Country to 64 in Estonia. MRI to histopathology (KPI 11.2) was 36–77 days across the four PRAISE-U sites reporting it, and externally 41 days in Sweden, 73 in the Basque Country and 131 in Foggia. Histopathology to treatment (KPI 11.3), in which starting active surveillance counts as treatment initiation dated from the first surveillance visit, was 42–69 days at four PRAISE-U sites and 166 days in Lower Silesia. Sweden reported 78 days.

Further assessment, diagnosis and treatment (KPIs 12–17, 21)

Attendance for MRI among men referred (KPI 12) was 89.9–98.3% across PRAISE-U. For other ongoing external initiatives, it ranged from 47.3% in the Basque Country, 57.4% in Lombardy to 97.6% in Sweden. Among men with PSA < 10 ng/ml undergoing MRI (KPI 13), PI-RADS 4–5 lesions ranged from 29.3% in Ireland to 49.7% in Galicia within PRAISE-U and from 13.4% in Sweden to 36.1% in the Basque Country externally; PI-RADS 1–2 findings were most frequent in Piedmont (80.9%), Foggia (75.3%), Sweden (69.1%) and Ireland (60.3%). Compliance with biopsy (KPI 14) was 78.9–99.0% in PRAISE-U and externally from 14.9% in Lombardy and 53.7% in the Basque Country to 95.6% in Sweden, with 75.0% in Foggia.

The detection rate (KPI 15) was 8 per 1,000 screened in Manresa, 12 in Ireland, 15 in Galicia, 18 in Lithuania and 26 in Lower Silesia; externally 8 in Czech Republic, Estonia and Piedmont, 9 in the Basque Country, 28 in Foggia and 4.3 in Sweden. The grade distribution (KPI 16) differed markedly: ISUP grade 1 accounted for 20.3% of cancers in Galicia, 47.4% in Manresa, 50.0% in Ireland, 62.2% in Lower Silesia and 81.4% in Lithuania, and externally from 10.6% in Foggia to 59.3% in the Basque Country, with 34.3% in Sweden. Treatment compliance (KPI 17) was 98.6–100% in Manresa, Galicia, Ireland and Lithuania and 62.2% in Lower Silesia; externally 15.8% in Foggia to 99.9% in Sweden. Active-surveillance uptake (KPI 21) ranged from 14.8% in Lower Silesia and 33.3% in Galicia to 77.8% in Manresa, 94.3% in Lithuania and 100% in Ireland, and externally from 15.8% in Foggia to 100% in Piedmont, with 87.3% in Sweden.

Impact indicators (KPIs 18–20)

We did not compute incidence, mortality or interval cancers within the pilot horizon as it was categorized under impact KPIs. Sweden alone reported all three: crude incidence 203 and PCa mortality 40 per 100,000, and an interval cancer rate of 0.009%. These derive from national cancer and cause-of-death registry linkage rather than from the screening database.

Feasibility of KPI measurement

Thirteen KPIs (2, 5, 6, 7, 9, 10, 12, 13, 14, 15, 16, 17 and 21) were fully reported by all five PRAISE-U sites. KPI 11 was partial because Lithuania did not report the MRI-to-histopathology interval. We did not report coverage (KPIs 1 and 3), retention (KPI 4), opportunistic testing (KPI 8) and the impact indicators (KPIs 18–20) for PRAISE-U pilots. External pilot values fell broadly within the PRAISE-U ranges, the exceptions being Foggia, where recruitment was ongoing, and Sweden, whose cumulative multi-round data gave lower positivity and detection. Feasibility among EUCanScreen programmes remained heterogeneous, while Sweden reported 19 of 21 KPIs, lacking only opportunistic testing and complications. Figure 2 summarises the range and median of each KPI across all reporting programmes.

Discussion

This is the first empirical report of a harmonised KPI set for organised PCa screening across European projects, pilots and programmes, placing completed pilots, a new wave of pilots and a mature registry-based programme on a common measurement grid. The findings distinguish feasibility of delivering a risk-stratified prostate cancer screening pathway from readiness to operate an organised screening programme at population level.

Risk-stratified screening introduces pathway complexity compared to a single-test screening, involving repeated clinical decisions, investigations and transitions between services, each of which introduces potential implementation failure points. Within PRAISE-U, once men with an elevated PSA entered the pathway, 76–96% completed first-level risk assessment, 90–98% attended MRI and 79–99% underwent biopsy when eligible. The high completion of first-level risk assessment, MRI and biopsy across the PRAISE-U pilots suggests that this complexity can be operationally manageable under pilot conditions. However, feasibility of the diagnostic pathway should not be equated with readiness for organised population screening. Coverage, recall, re-screening and long-term impact require population denominators, longitudinal identifiers and registry linkage - capabilities demonstrated most clearly by the Swedish programme. The KPI framework therefore exposes two distinct implementation challenges: delivering an increasingly complex clinical pathway and building the population infrastructure necessary to sustain it over repeated screening rounds.

In this assessment, programme-level indicators were less consistently available. The spread of values across the PRAISE-U and other EU initiatives (Fig. 2) shows why these indicators matter both for monitoring current performance and for planning broader roll-out. No cohort other than Sweden had reached its two- or five-year re-screening interval, which explains why KPI 4 was unavailable at every pilot site; Sweden reported 73.1%. This matters because the mortality benefit demonstrated in randomised trials accrues to men screened repeatedly over one to two decades, not to a single round. Retention depends on infrastructure as well as clinical quality: it requires a longitudinal identifier, a recall function and a screening register that persists between rounds, which the Swedish programme has and the pilots do not [20]. Programme-level measurement was nonetheless possible selectively outside Sweden, showing that individual indicators can be captured before a full register exists. Programmes unable to measure testing outside their own pathway cannot fully interpret participation or distinguish a screen-naïve population from one already heavily tested [23].

The grade distribution varied widely across sites. Within PRAISE-U, ISUP grade 1 disease accounted for a fifth of cancers in Galicia and four-fifths in Lithuania, with Manresa, Ireland and Lower Silesia in between; Foggia combined the highest reported detection rate (28 per 1,000) with the lowest grade 1 share (10.6%), although ongoing recruitment limits comparison. Grade distribution is best read as a composite output of the whole pathway, because every decision before biopsy - PSA threshold, risk calculator and cut-off, the PI-RADS score leading to biopsy, and biopsy technique - shifts both detection and the balance of indolent to significant disease. Differences in prior opportunistic testing, case mix, population genetic background and pathology reporting may contribute further. Lower Silesia combined the highest PRAISE-U detection rate (26 per 1,000) with a high grade 1 share (62.2%), a pattern consistent with greater overdiagnosis, although confirming this requires detailed risk assessment of the men screened and a fidelity assessment of the diagnostic pathway. Grade distribution has no direct counterpart in breast, cervical or colorectal screening frameworks but is indispensable for monitoring early PCa screening implementation.

Care intervals are another way to identify bottlenecks. Mean time from PSA result to MRI ranged from 19 days in the Basque Country to 114 in Ireland, where a home-collected sample must be followed by a clinic visit; MRI-to-histopathology time reached 131 days in Foggia. Within PRAISE-U, histopathology-to-treatment time ranged from 42 to 166 days, the longest in Lower Silesia. Several of these intervals are long by the standards of established breast and colorectal screening programmes, where diagnostic work-up is commonly expected, and are likely to affect acceptability as well as outcomes. Sweden's 23, 41 and 78 days are the shortest reported here.

Active-surveillance uptake varied more than any other management indicator, from 14.8% in Lower Silesia to 100% in Ireland and Piedmont, with 87.3% in Sweden. Lithuania combined the highest share of grade 1 disease (81.4%) with high surveillance uptake (94.3%), and Galicia the lowest share among PRAISE-U sites (20.3%) with lower uptake (33.3%); in both, management broadly followed the case mix. The combination that should concern programmes is the opposite one - rising detection of indolent disease alongside low uptake of active surveillance - which Lower Silesia approaches, pairing a grade 1 share of 62.2% with surveillance uptake of only 14.8%. Foggia also reported low surveillance uptake and treatment compliance (both 15.8%), but ongoing recruitment makes incomplete pathway completion the more plausible explanation.

This study has several limitations. The PRAISE-U pilots were implemented for 12 months and the external programmes were at different stages, so several indicators reflect incomplete pathways rather than final performance, most evidently treatment compliance in Lower Silesia and Foggia and biopsy compliance in Foggia, the Basque Country and Lombardy. Reporting periods were not synchronised and the Swedish values are cumulative rather than first-

round. Survey-derived values were not audited centrally. Programme sizes limit precision for rare events, and differences in age range, PSA threshold, risk-stratification tool and biopsy technique restrict comparison. Some KPIs therefore need refinement before supporting inter-programme comparison, since PSA distributions, MRI results and detection rates vary across age groups and between first and subsequent rounds. The care intervals should be reported as medians with interquartile ranges rather than means, as their distributions are likely right-skewed. The KPI set does not yet include measures of equity, which CanScreen-ECIS recommends for other screening programmes [13]; participation and pathway completion stratified by deprivation, rurality and country of birth should be added.

Conclusions

The 21 PRAISE-U KPIs can be collected across European health systems at very different stages of organising PCa screening, and the diagnostic-pathway indicators already discriminate meaningfully between initiatives. Grade distribution, care intervals and active-surveillance uptake were particularly informative when interpreted alongside programme maturity. Programme-level indicators were reported far less consistently, and only Sweden, which operates on a population register with a longitudinal identifier and cancer-registry linkage, could report retention and the impact indicators [19, 20]. A harmonised monitoring framework should therefore combine common definitions with infrastructure appropriate to the programme stage.

Declarations

Data availability

PRAISE-U individual-level data are held in the REDCap database hosted by the European Association of Urology; aggregate KPI data are provided in Table 2 and site-level data are available on reasonable request subject to site data-governance approval. Survey responses from external programmes are available with the permission of the respective programme coordinators.

Competing interests

The authors declare no competing interests.

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Author contributions

AC, conceptualisation, data curation, formal analysis and writing - original draft. DS, MvH and SP, data curation, formal analysis and writing - original draft. PB, RVB and MJR, conceptualisation and supervision. All other authors, data collection, investigation and writing - review and editing. All authors approved the final manuscript.

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Figures

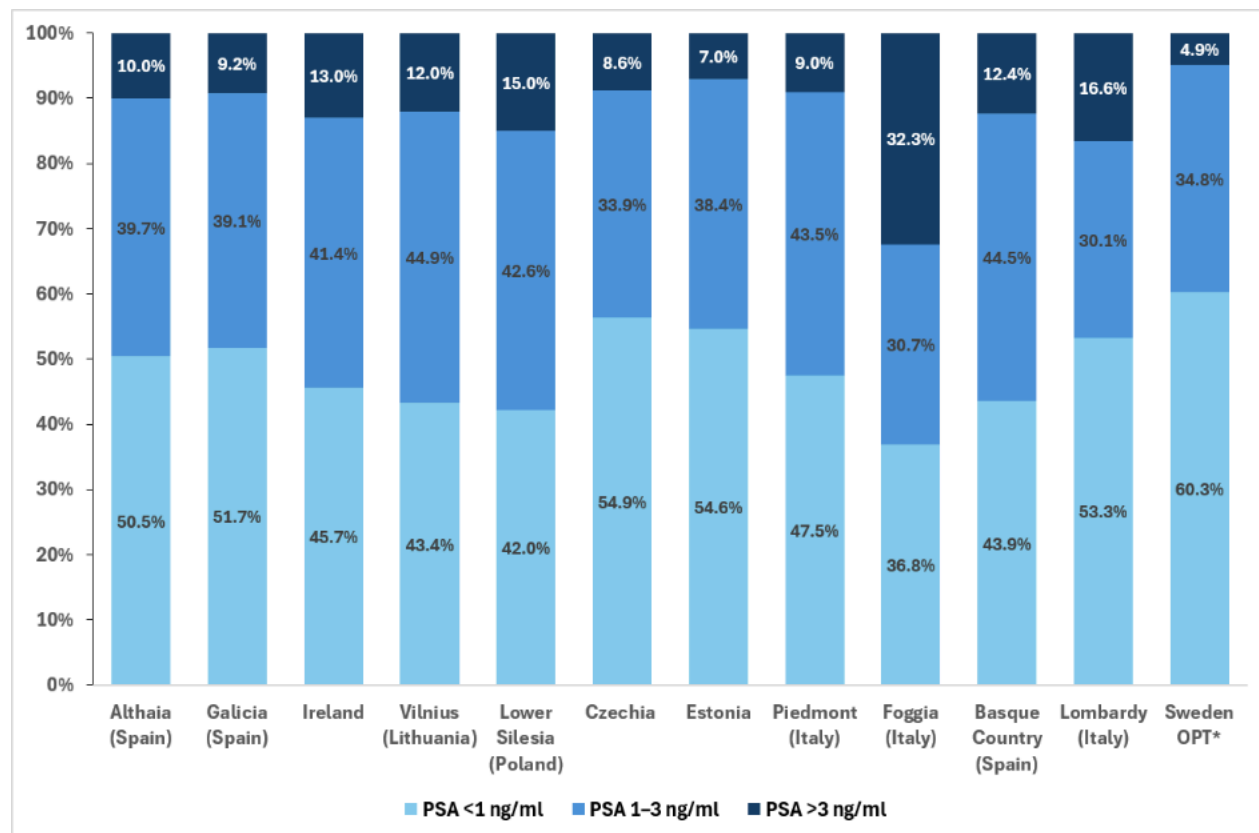


Figure 1

PSA distribution across 12 programmes reporting screening test results

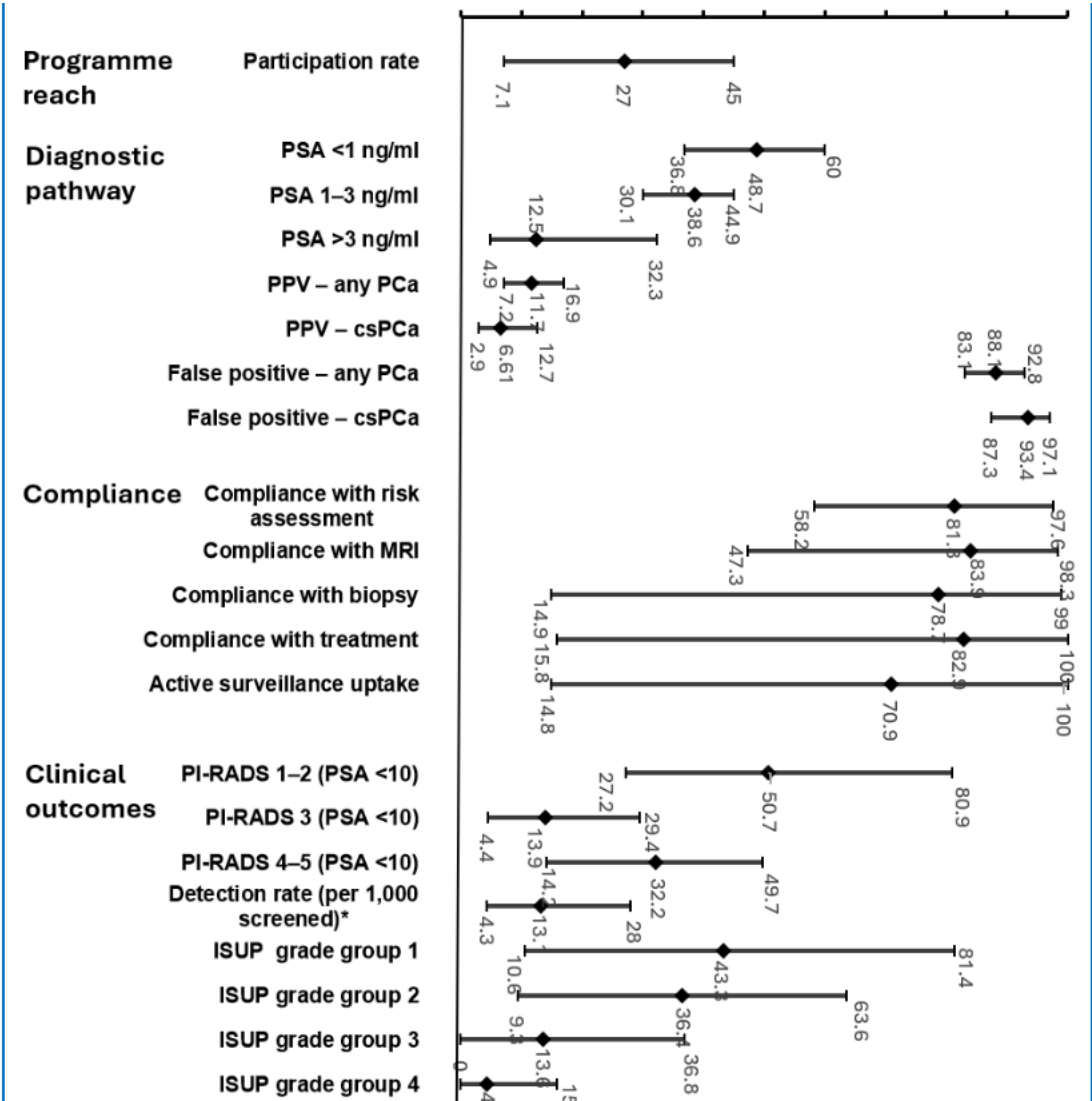


Figure 2

Range and average of each key performance indicator across all reporting programmes, grouped by domain. Diamonds mark the median and whiskers the lowest and highest reported value; the number of programmes contributing differs by indicator. *Detection rate is expressed per 1,000 men screened and is plotted on the same numeric scale for display.