A Systematic Literature Review (SLR) of Health-State Utility Values (HSUVs) in Metastatic Castration-Resistant Prostate Cancer (mCRPC)

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Objective

To conduct an SLR in the first (1L) and later lines (2L+) of therapy, in the asymptomatic or mildly symptomatic mCRPC setting to identify reported HSUVs.

Conclusions

HSUVs in the 1L setting were generally higher than those in 2L+. HSUVs in the SD/PFS health state were higher than the PD health state regardless of line of therapy (LoT).

This study comprehensively identified and synthesized the current health state utility data in mCRPC in 1L and 2L+ and can act as a valuable resource for those developing cost-utility analyses (CUAs) in mCRPC.

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Abbreviations: 1L = first line; 2L+ = second and later line; 15D = 15-dimension; AQoL = Australian Quality of Life; CUA = cost-utility analysis; EORTC QLQ-C30 = European Organization for Research and Treatment of Cancer Quality of Life Questionnaire Cancer 30-question; EORTC QLQ-PR25 = European Organization for Research and Treatment of Cancer Quality of Life Questionnaire Prostate-specific 25-question; EQ-5D = EuroQoL 5-dimension; EQ-5D-3L = EuroQoL 5-dimension 3-level; EQ-5D-5L = EuroQoL 5-dimension 5-level; FACT-G = Functional Assessment of Cancer Therapy – General; FACT-P = Functional Assessment of Cancer Therapy – Prostate; HSUV = health state utility value; HUI3 = Health Utility Inc. 3; QWB = quality of well-being; LoT = line of therapy mCRPC = metastatic castration-resistant breast cancer; n = number; PD = progressive disease; PFS = progression-free survival; SD = stable disease; SF-6D = Short-Form 6-dimension; SLR = systematic literature review

References: **1.** Xie F, et al. *Med Decis Making.* 2019; 30(4): 370-378. **2.** Page, et al. *BMJ.* 2021;372:n160. **3.** Page, et al. *BMJ.* 2021;372:n71. **4.** Higgins JPT TJ et al. 2021. **5.** Papaioannu D, et al. 2010. **6.** Drummond MF, et al. *BMJ.* 1996; 313(7052): 275-283

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Background

- HSUVs are often used to inform CUAs. However, sourcing appropriate HSUVs can be challenging due to missing or ambiguous information or lack of context.[1]
- To our knowledge, no studies have conducted a comprehensive literature review to identify and critically synthesize HSUVs across multiple lines of therapy in asymptomatic or mildly symptomatic mCRPC.

Materials and Methods

SYSTEMATIC LITERATURE REVIEW

- Embase, MEDLINE®, and Cochrane CENTRAL were searched on August 19th, 2021, and updated on October 3rd, 2022 using Ovid®. Grey literature sources were also hand searched (**Figure 1**). Articles were selected based on pre-specified PICOS criteria (**Table 1**). Review implementation and reporting followed the PRISMA statement[2-3] and Cochrane guidelines[4] (PROSPERO registration: CRD42021283512).
- Quality assessment was performed on full-text publications using the NICE Quality Assessment Checklist for HSUVs[5] and the Drummond and Jefferson Checklist for economic evaluations.[6]

Table 1: PICOS Criteria

Population	Study populations or subgroups of patients (humans only; men) with: • Age ≥18 years • Histologically or cytologically confirmed adenocarcinoma of the prostate • Metastatic disease; castration-resistant/hormone-resistant/hormone-refractory • Asymptomatic or mildly symptomatic mCRPC
Interventions/ Comparators	Any treatments available or under investigation for mCRPC
Outcomes	• Generic preference-based HSUVs from the following instruments: EQ-5D-3L*, EQ-5D-5L*, SF-6D, HUI3, QWB index, 15D, AQoL • Generic measures from the following instruments: SF-36 • Disease-specific measures from the following instruments: EORTC QLQ-C30, EORTC QLQ-PR25, FACT-G, FACT-P • Values generated by measures which might be mapped on to the EQ-5D that are not already included above • Mapping algorithms of measurement instruments used in mCRPC to derive HSUVs
Study Design	RCTs, non-randomized trials, observational studies, HSUV elicitation studies, economic evaluations, HTA assessments, and conference abstracts

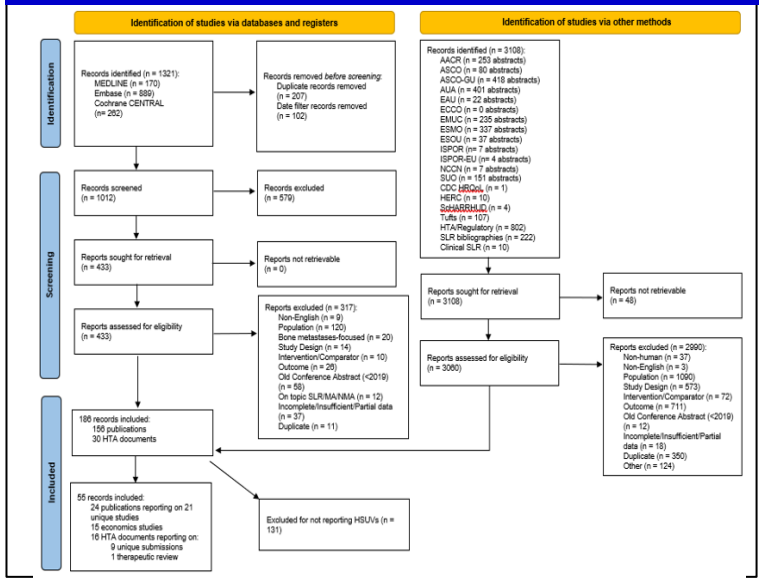
*EQ-VAS was also captured alongside included EQ-5D outcomes

Results

SEARCH RESULTS

- A total of 25 unique economic studies and 21 unique primary studies evaluating HSUVs were included (**Figure 1**); only unique studies reporting HSUVs using EQ-5D are presented in this analysis.

Figure 1: PRISMA Flow Diagram



ECONOMIC STUDIES RESULTS

- EQ-5D HSUVs by LoT and health states are presented in **Table 2**.
- Regardless of LoT, HSUV for palliative care was 0.5

Table 2: EQ-5D Utility Values in Economic Studies by Line of Therapy and Health State*

1L		2L+	
SD/PFS (n=4)	**PD (n=2)**	**SD/PFS (n=10)**	**PD (n=7)**
0.63-0.844	0.612-0.658	0.617-0.84	0.37-0.715

* Economic studies included in the SLR which did not clearly state the health state of the utility value were not presented in this summary

PRIMARY STUDIES RESULTS

- Studies (n=4) with unclear LoT had utility values ranging from 0.635-0.84 (EQ-5D Index) overlapping with those reported in both 1L and 2L+ (**Table 3**).

Table 3: EQ-5D Utility Values in Primary Studies*

Line of Therapy	Baseline* EQ-5D Index Score	Baseline* EQ-VAS
1L (n=11)	0.70-0.9	68.0-77.5
2L+ (n=8)	0.63-0.7	62.7-73.9

*Baseline typically defined as the utility value at the start of treatment, but could differ between studies

LIMITATIONS

- Many studies did not specify use of EQ-5D-3L vs EQ-5D-5L instruments; utility values from EQ-5D-3L/5L instruments were aggregated for presentation.
- EQ-5D Index values from multiple countries were included in the presented ranges, which differ based on country-specific preference-weights and scoring algorithms.