How has quality-of-life been assessed in submissions to the PBAC?

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Background

Unlike NICE, the PBAC does not require QALYs to be presented in submissions

Wide variety of approaches to derive QALYs seen in submissions to the PBAC

from:

- undertaking studies specifically to identify QALY weights for a submission

to:

- *ad hoc* approaches based on opinion

Objective

To investigate the methods used for estimating QALY weights included in submissions by industry for listing on the PBS

Methods

- Retrospective review of submissions considered by the PBAC from 2002 to 2004
- Identified submissions reporting a CUA or QALYs in the PES database
- The evaluators' commentary for each submission obtained and relevant information extracted
  - Commentary obtained as a "summary" of the submission
  - In some cases the submission itself was retrieved

Methods

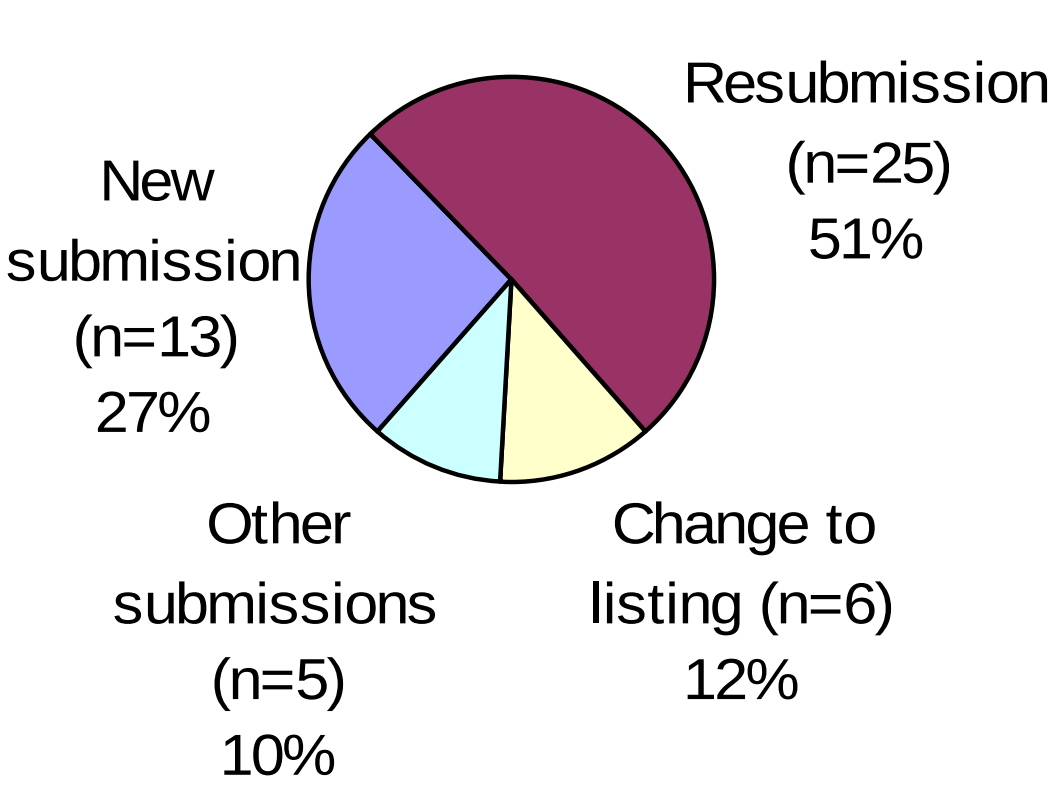
- Information was analysed according to:
  - Approach taken to obtain QALY weights
    - *Multi-attribute utility instrument (MAUI)*
    - *Health state valuation (HSV) experiment*
    - *Non-preference-based approach*
      - i.e. no trade-offs involved
  - Participant population
  - Therapeutic area for use of the pharmaceutical
  - Decision by PBAC to recommend / reject / defer

- Did not include details on population used to value MAUIs or descriptions of scenarios used in HSVs

Results

Type of economic evaluation	**N**	***%***
Cost-utility analysis (CUA)	49	*21.3*
Cost-effectiveness analysis (CEA)	111	*48.3*
Cost-benefit analysis (CBA)	1	*0.4*
Cost-minimisation analysis (CMA)	58	*25.2*
Cost analysis (CA)	8	*3.5*
No economic analysis	3	*1.3*
Total	230	100

49 CUA's

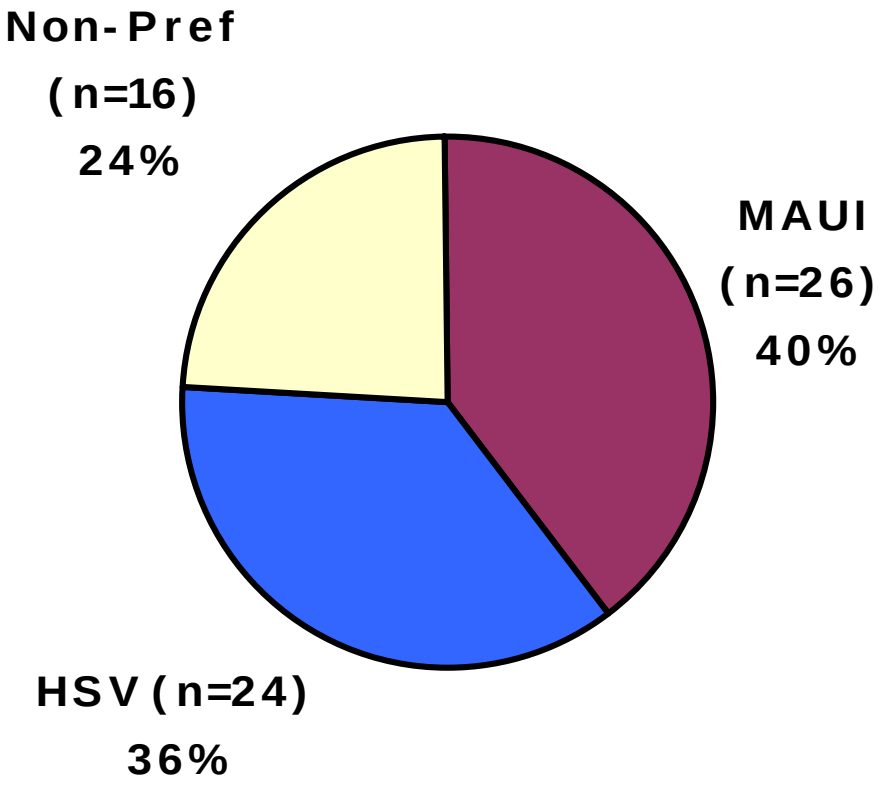

Resubmission
(n=25)
51%
New
submission
(n=13)
27%
Other
submissions
(n=5)
10%
Change to
listing (n=6)
12%

Approaches used

49 CUA's

5 Excluded (insufficient info)

= 66 Approaches



Approaches: MAUIs

Instrument	***N***	***%***
AQoL	6	*23.1*
EQ-5D	15	*57.7*
HUI	2	*7.7*
SF-6D	3	*11.5*
Total	26	

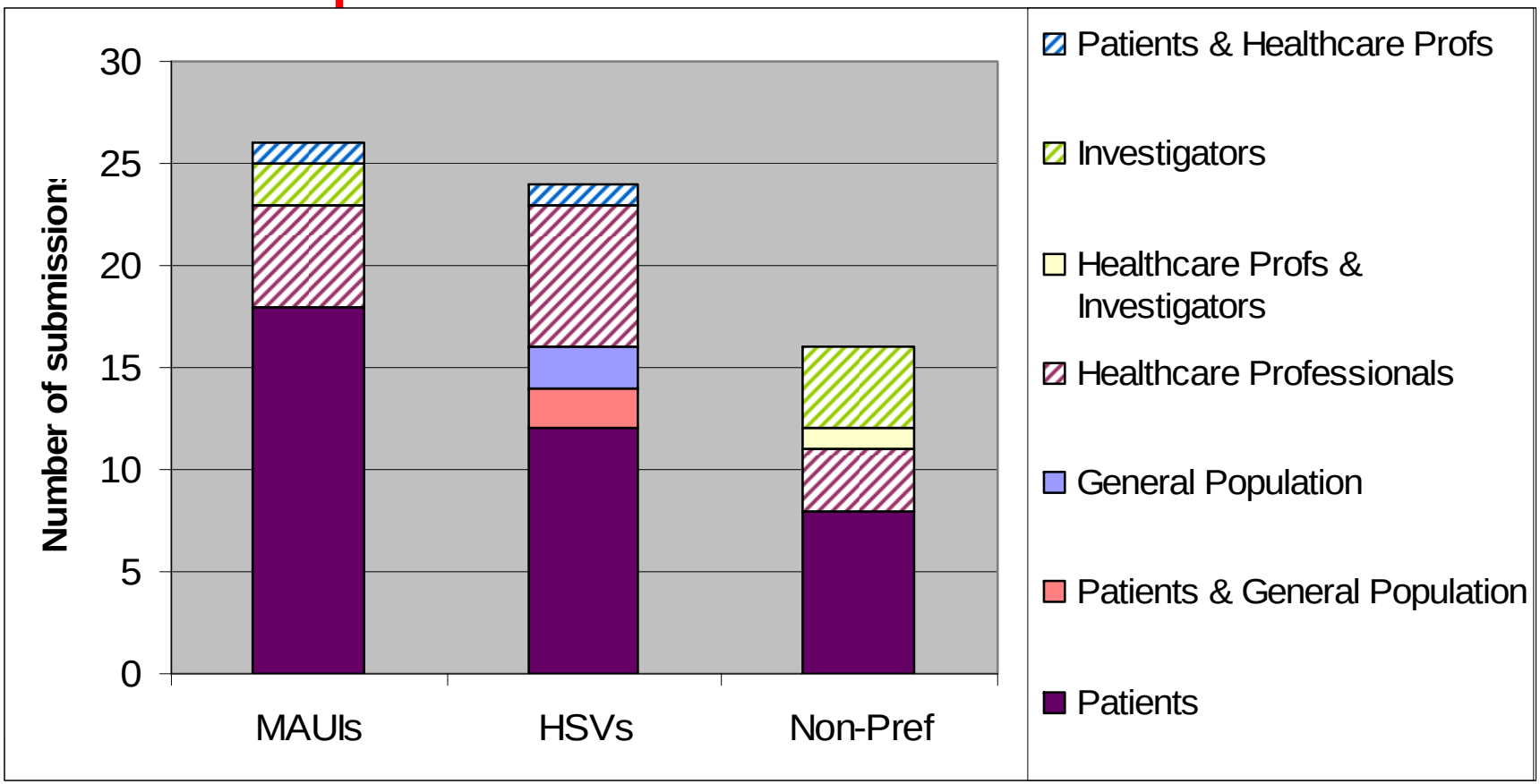
Approaches: HSVs

Approach	***N***	***%***
TTO	14	*58.3*
SG	5	*20.8*
TTO/SG	5	*20.8*
Total	24	

Approaches: Non-preference

Approach	***N***	***%***
Mapping	7	*43.8*
Rating Scale	7	*43.8*
Other	2	*12.5*
Total	16	

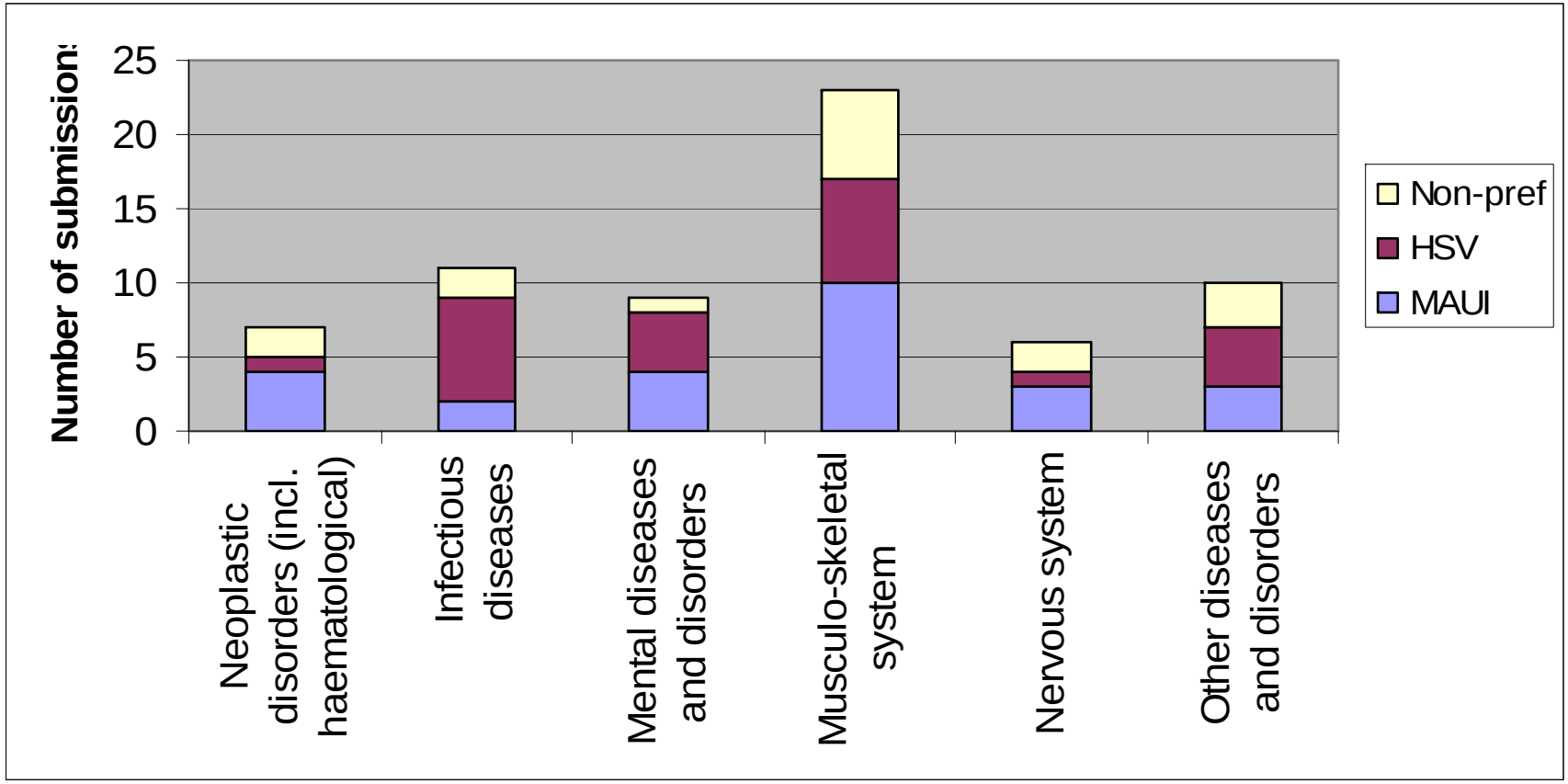
Participants



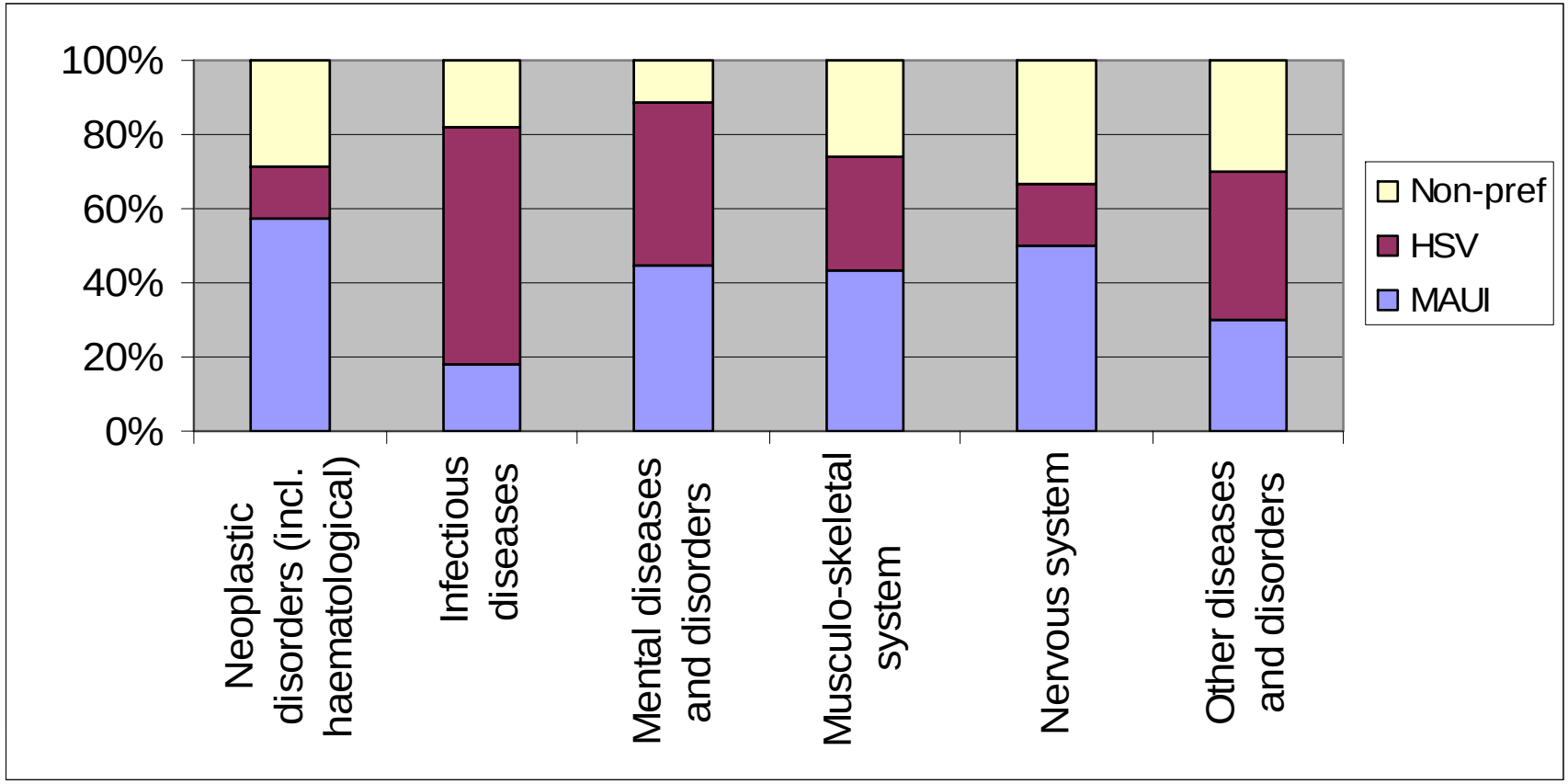
Therapeutic areas

	MAUI	HSV	Non-pref	Total
Neoplastic disorders	4 (57)	1 (14)	2 (29)	7
Infectious diseases	2 (18)	7 (64)	2 (18)	11
Mental diseases and disorders	4 (44)	4 (44)	1 (11)	9
Musculo-skeletal system	10 (43)	7 (30)	6 (26)	23
Nervous system	3 (50)	1 (17)	2 (33)	6
Other diseases and disorders	3 (30)	4 (40)	3 (30)	10
Total	26 (39)	24 (36)	16 (24)	66

Therapeutic area



Therapeutic area



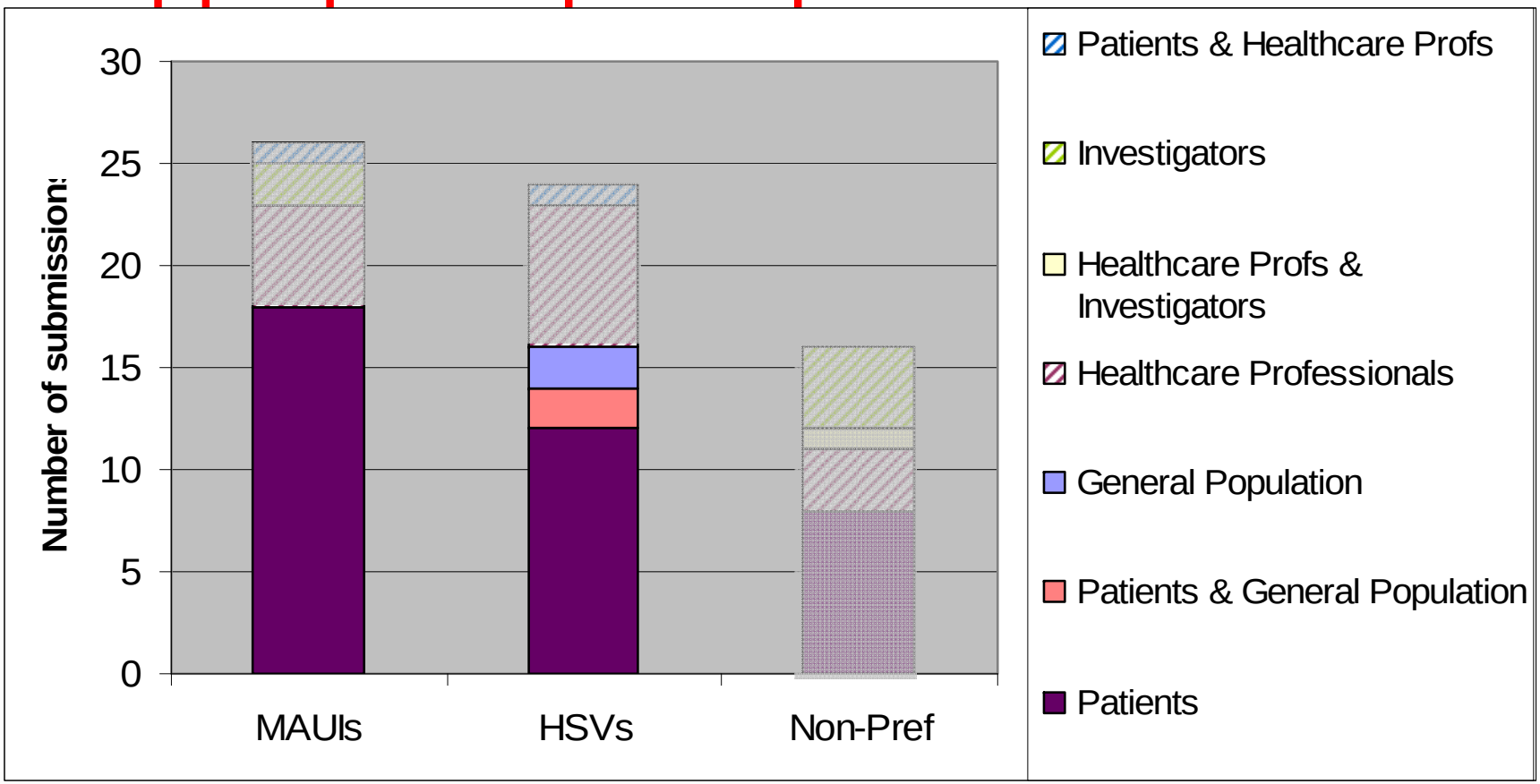
Appropriate approach?

Simple classification used:

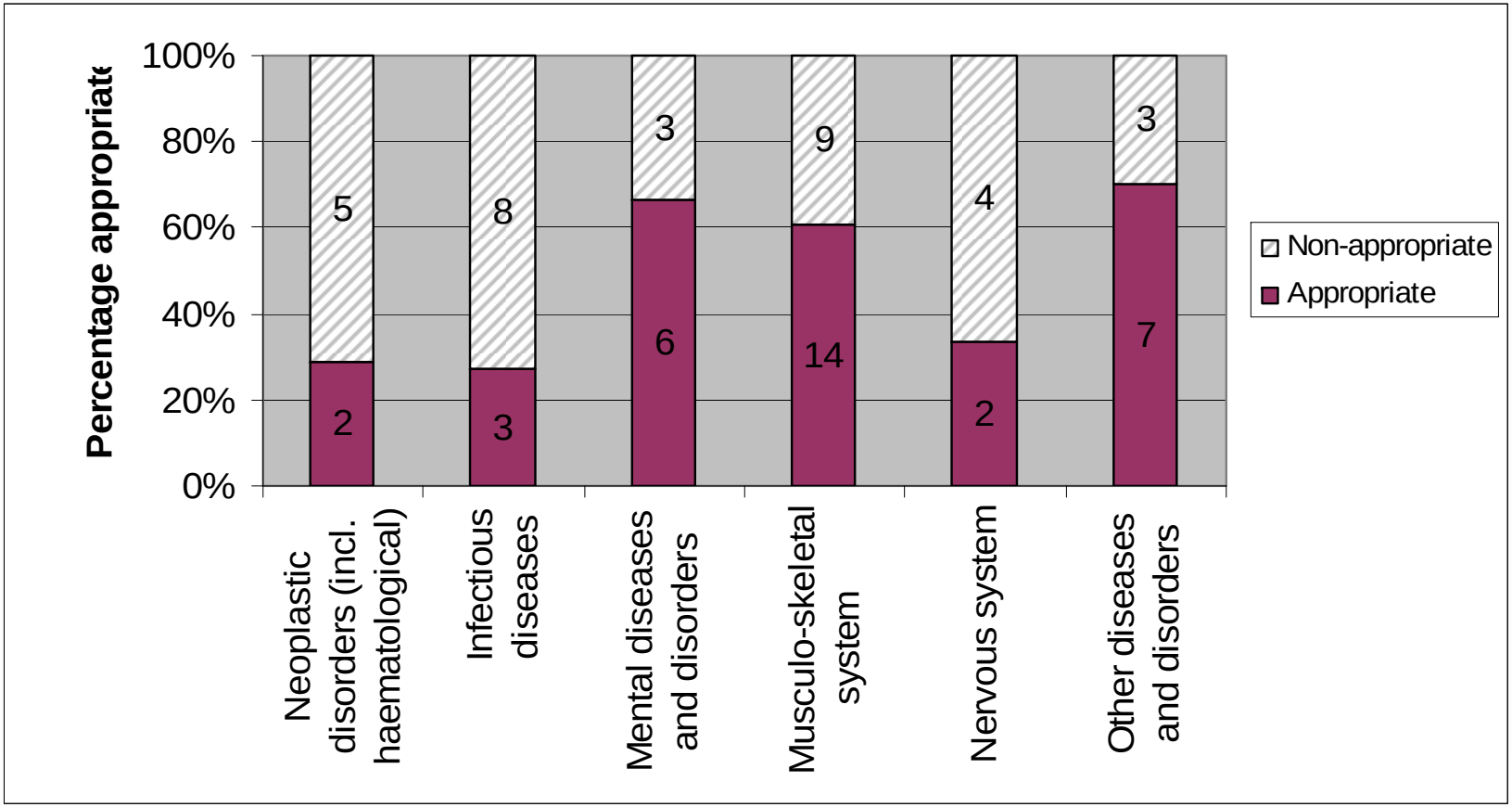
- MAUIs
  - used to measure health state of patients directly
- HSV's
  - used to value health state from general population and/or patients
    - *(appropriateness of health state description ignored)*
- Non-preference
  - Never appropriate?

Patient proxies (healthcare professionals and investigators) considered as inappropriate here

Appropriate participants?



Appropriate x therapeutic area?



PBAC decision

	Recommend		Defer		Reject	
	N	**%**	**N**	**%**	**N**	**%**
MAUIs	5	*19.2*	7	*26.9*	14	*53.8*
HSVs	8	*33.3*	1	*4.2*	15	*62.5*
Non-Pref	3	*18.8*	2	*12.5*	11	*68.8*
Total	16		10		40	

Mean rejection rate: 61%

PBAC decisions x Appropriate approach

	Recommend		Defer		Reject	
	N	***%***	**N**	***%***	**N**	***%***
MAUIs	5	*27.8*	4	*22.2*	9	*50.0*
HSVs	5	*31.3*	1	*6.3*	10	*62.5*
Total	10		5		19	

Mean rejection rate of appropriate approaches: 56%

Discussion

- Poorly designed and executed studies used in a substantial number of submissions. Includes
  - reported in the literature
  - studies undertaken specifically for the submission

- Main problems are:
  - Use of non-preference approaches
  - Choice of participants
    - *NB: Always problems with very young children & some health states (e.g. dementia)*

Discussion

- Values of investigators and health care professionals frequently used (36%)

- Non-preference approaches frequently used (24%)
  - >30% undertook a new study to obtain QALY-weights using a non-preference approach
  - One case: transformation used to rescale EQ-5D scores to AQoL
    - *Unnecessary and creates more uncertainty*

Discussion

- HSV studies:
  - 33% used inappropriate participants (investigator and/or health professionals)

- MAUIs:
  - In some cases, health state scenarios were described for completion of the MAUI by a healthcare professional or investigator = nuts!
    - *E.g. health state described as "in extreme pain and unable to perform usual activities"*

Discussion

- Approach used appears to make little difference to PBAC decision
  - Reasons for this are CUA / QALYs are not required
    These are seen as supplementary analyses
  - Decision based on other criteria (e.g. clinical outcomes)
  - No incentive to improve quality of QALY calculations

- **IFF** reference case required (e.g. as per NICE), then quality of "QALYs" likely to improve

Limitations

- Approaches not independent observations
  - Some submissions include >1 approach

    Inference about PBAC decision is tenuous
  - Some resubmissions used same approach as in original submission – counted twice

- MAUI's: population to value health states not considered when classifying as "appropriate / not"

- HSV's: Description of health state not considered when classifying as "appropriate / not"

Recommendations?

1. Minimise bias
   - MAUIs:
     - *For patients not in the trial – get a good match between completing the MAUI and those in the trials*
     - *Use an instrument that is sensitive to the elements that drive the health state*
     - *Ensure that the population valuing the health state (using TTO/SG) understand the health state description*
     - *Ensure the scoring algorithm aggregates the values appropriately*

Recommendations?

1. Minimise bias con't
   - HSV's:
     - *Analyst describes the health state actually experienced*
     - *The respondent understands the health state described before proceeding to TTO/SG*

Recommendations?

- The main drivers of the QALY should have the greatest effort to obtain greatest accuracy

- Use a MAUI
  - Instrument should be sensitive to changes in health state for condition being investigated
  - Administered to patients with the condition at various stages along the disease progression pathway
    - *Ideally during the RCT and during phase 4*
  - Valued using weights from Australian population

Acknowledgements

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Co-authors:

J Whitty, A Mitchell, R Viney

Reference:

Scuffham PA, Whitty JA, Mitchell A, Viney R. The use of QALY weights for QALY calculations. A review of industry submissions requesting listing on the Australian Pharmaceutical benefits Scheme 2002-4. *Pharmacoeconomics* 2008, 26(4): 297-310