Review of Possible Causes of Variation in National Institute for Health and Care Excellence (NICE) Technology Appraisals

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BACKGROUND

- The National Institute for Health and Care Excellence (NICE) was established in 1999 with the remit to reduce variation in the availability and quality of National Health Service treatments and care and thus ensure equity in reimbursement decision making across England.
  - The technology appraisal (TA) process remains at the heart of NICE's work and, if the original aim is to be achieved, the TA process must use a fair and consistent approach.

OBJECTIVE

- This review was conducted to assess elements of the TA process that may lead to inconsistency, such as the choice of Evidence Review Group (ERG) that reviews the company evidence submission and informs Appraisal Committee decision making.

METHODS

- Published current NICE single technology appraisals (STAs) were reviewed on the NICE website up to March 2018.[1]
- Appraisals that were withdrawn, terminated, or suspended and those that were reviews of previously published TAs were excluded from this analysis.
- Key TA output data were extracted, including ERG, appraisal committee, final recommendation, number of committee meetings, number of weeks from scope to final appraisal determination (FAD), and proportion of decisions going straight to FAD.
- Descriptive statistics relating to possible sources of variability were calculated.

RESULTS

TA Decisions by ERG: Overall

- Up to March 2018, 268 STAs meeting our inclusion criteria were reviewed by 10 ERGs:
  - British Medical Journal (BMJ) (n = 23), York (n = 29), Aberdeen (n = 25), Kleijnen (n = 27), Liverpool (LRiG) (n = 37), Peninsula Technology Assessment Group (PenTAG) (n = 16), Sheffield (ScHARR) (n = 53), Southampton (n = 32), Warwick (n = 19), and West Midlands (n = 7; no longer active)
- Data regarding the committee decisions for TAs according to the ERG that reviewed the evidence submission are shown in Table 1.
- Among ERGs:
  - % positive recommendations: range, 43.8%-66.7%
  - % optimised: range, 18.5%-56.0%
  - % not recommended: range, 0%-18.8%
- The number of committee meetings ranged from 1 to 4 (mean, 1.95; median, 2).
- In total, 69 (25.8%) appraisals went straight to FAD with only one committee meeting.

TA Decisions by ERG: Cancer/Non-Cancer Topics

- Due to the broad range of disease areas and technologies covered by the 268 STAs reviewed by the 10 ERGs, it is difficult to draw meaningful conclusions about the impact of the ERG assessment report on committee decision making.
- In order to investigate this further, we separated TA decisions by ERG into non-cancer and cancer topics. Cancer topics undergo a slightly different NICE process, with all topics referred to NICE with the additional option of being approved via the Cancer Drugs Fund (CDF).

Cancer TA Decisions

- Figure 1 presents a summary of committee decisions by ERG for those that contributed to ≥ 10 cancer TAs (n = 7).
- For these 7 ERGs, the majority of committee decisions resulting from their evidence review were positive (recommended, optimised, recommended in the CDF, and optimised in the CDF).
- Submissions reviewed by York, BMJ, and LRiG resulted in the highest proportion of "not recommended" committee decisions: 30.8%, 25.0%, and 20.0%, respectively.
- LRiG (n = 30) and ScHARR (n = 24) have each undertaken approximately twice as many reviews in cancer compared with any other ERG.
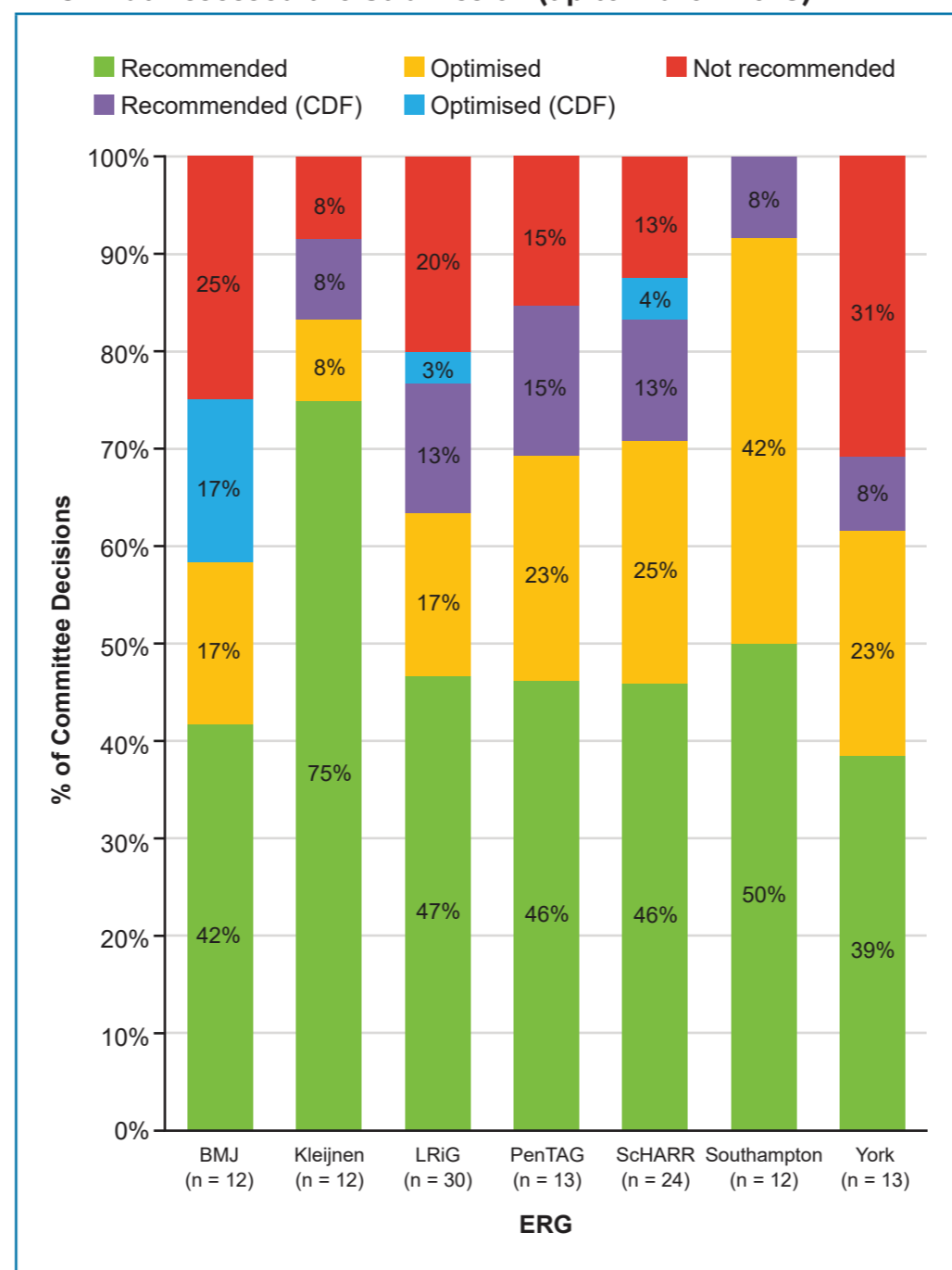
Table 1. Summary of NICE TA Decisions According to the ERG That Assessed the Submission (up to March 2018)

| ERG | Number of TAs | NICE Committee Decision n (%) | | | | | | Disease area (n) | |
		Recommended	Optimised	Research	Recommended in the CDF	Optimised in the CDF	Not Recommended	Cancer	Non-Cancer
Aberdeen	25	11 (44.0%)	14 (56.0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	7	18
BMJ	23	11 (50%)	7 (27.3%)	0 (0%)	0 (0%)	2 (9.1%)	3 (13.6%)	12	11
Kleijnen	27	18 (66.7%)	5 (18.5%)	0 (0%)	1 (3.7%)	0 (0%)	3 (11.1%)	12	15
LRiG	37	19 (51.4%)	7 (18.9%)	0 (0%)	4 (10.8%)	1 (2.7%)	6 (16.2%)	30	7
PenTAG	16	7 (43.8%)	4 (25.0%)	0 (0%)	2 (12.5%)	0 (0%)	3 (18.8%)	13	3
ScHARR	53	24 (45.3%)	22 (41.5%)	0 (0%)	3 (5.7%)	1 (1.9%)	3 (5.7%)	24	29
Southampton	32	19 (59.4%)	6 (18.8%)	0 (0%)	1 (3.1%)	0 (0%)	6 (18.8%)	12	20
York	29	14 (48.3%)	10 (34.5%)	0 (0%)	1 (3.4%)	0 (0%)	4 (13.8%)	13	16
Warwick	19	9 (47.4%)	5 (26.3%)	0 (0%)	1 (5.3%)	1 (5.3%)	3 (15.8%)	7	12
West Midlands[a]	7	3 (42.9%)	2 (28.6%)	2 (28.6%)	0 (0%)	0 (0%)	0 (0%)	4	3
Total (n)	**268**	**135**	**82**	**2**	**13**	**5**	**31**	**134**	**134**

[a] West Midlands Health Technology Assessment Collaboration is no longer active as an ERG for NICE TAs.

CDF = Cancer Drugs Fund; LRiG = Liverpool Reviews and Implementation Group; PenTAG = Peninsula Technology Assessment Group; ScHARR = School of Health and Related Research (Sheffield).

Figure 1. Summary of NICE Cancer TA Decisions According to the ERG That Assessed the Submission (up to March 2018)

Note: ERGs that reviewed fewer than 10 cancer TAs were not included in the analysis (Aberdeen, Warwick, and West Midlands).

Figure 2. Summary of NICE Non-Cancer TA Decisions According to the ERG That Assessed the Submission (up to March 2018)
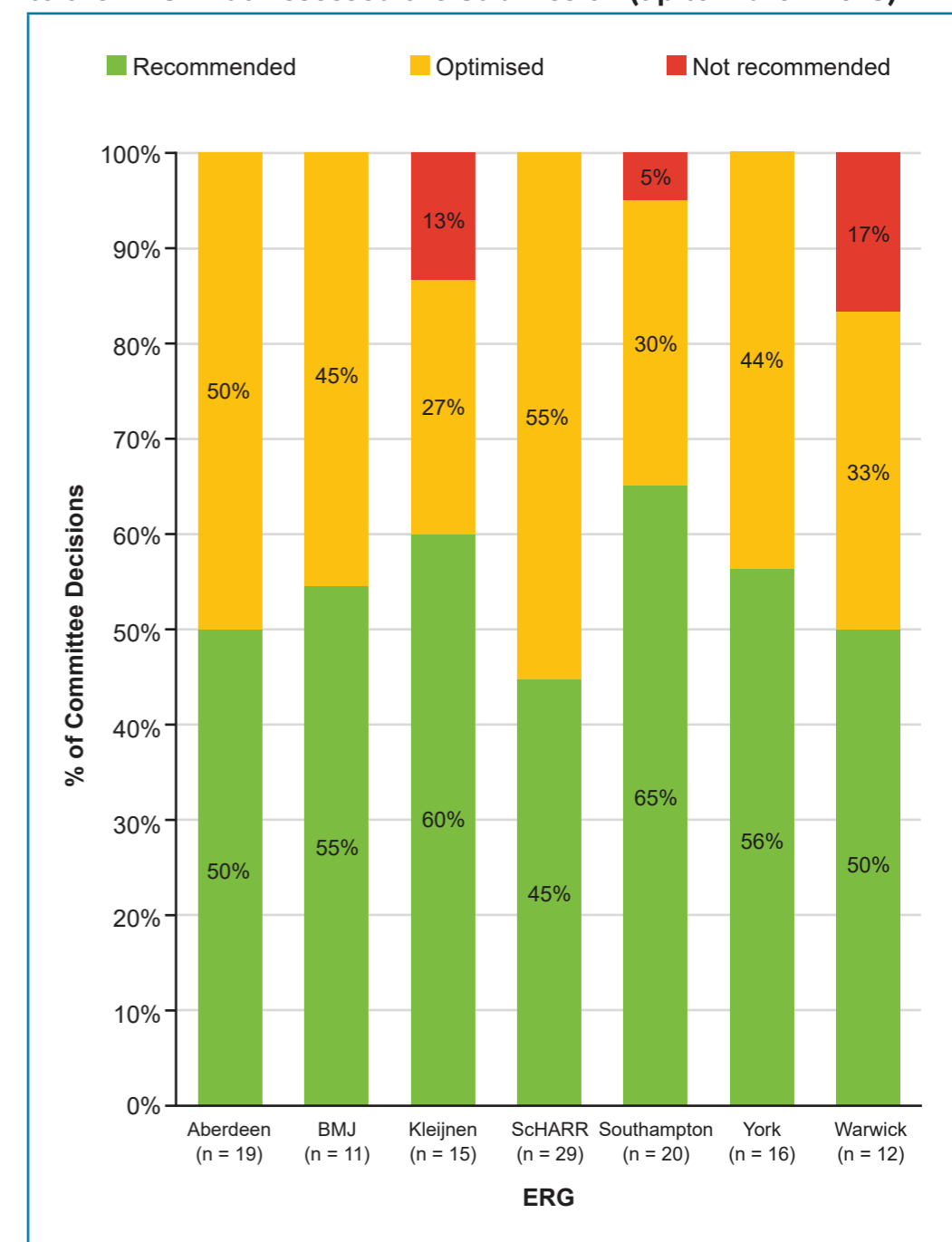
Note: ERGs that reviewed fewer than 10 non-cancer TAs were not included in the analysis (LRiG, PenTAG, and West Midlands).

Non-Cancer TA Decisions

- Figure 2 presents a summary of the decisions for non-cancer TAs by ERGs for those who contributed to ≥ 10 TAs.
- Similar to the cancer topics, the majority of committee decisions were positive (recommended or optimised).
  - However, for non-cancer appraisals, the committee made a "not recommended" decision less often than for cancer appraisals.
- Kleijnen, Southampton, and Warwick were the only ERGs that reviewed submissions for ≥ 10 non-cancer TAs that resulted in a "not recommended" decision by the appraisal committee during the time period investigated.
- Due to the difference in the number of TAs analysed by different ERGs and other varying factors in the type of technology and disease area, it is difficult to draw meaningful conclusions from these data.

CONCLUSIONS

- Aspects of the review process may result in inconsistency in approach; a previous review identified differences between appraisal committees in terms of appraisal outcome.
- Although this review found that the proportion of appraisal committees making a "recommended" decision differed according to the contributing ERG, variability was low with most NICE appraisals, resulting in a full or optimised recommendation.
- There was generally a higher proportion of "not recommended" decisions for cancer TAs compared with non-cancer TAs. This may reflect the fact that all cancer topics are referred to NICE to undergo review at the same time as gaining marketing authorisation, which may mean the evidence base is not strong enough at that time to support HTA decision making.

REFERENCE

1. NICE. Summary of decisions. March 2018. Available at: https://www.nice.org.uk/about/what-we-do/our-programmes/nice-guidance/nice-technology-appraisal-guidance/summary-of-decisions. Accessed 24 October 2018.

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