Consulting Report

Time Trends in NICE HTA Decisions

This report was commissioned from OHE Consulting by Pfizer Ltd.

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January 2012

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1. BACKGROUND

Shortly before the establishment of the then National Institute for Clinical Excellence (NICE) in April 1999, the Department of Health published a consultation document on the technology appraisal process entitled "Faster Access to Modern Treatment". This document identified the fundamental aim of the process as being the reduction of inequalities in access to innovative care, which in turn would ensure more rapid access to medicines identified as being of value to the NHS. Since 1999 there have been various analyses of the uptake of technologies that have been considered by NICE, starting with Sheldon (Sheldon, et al., 2004), with the latest published earlier this year by the NHS Information Centre (IC, 2011).

However, to date no evidence has been published on the way that health technology appraisal (HTA) processes may have affected the speed of access to new treatments. This report examines two aspects of this. First, we report the time elapsed between launch of a medicine to publication of a technology appraisal. Consideration of the impact of having a NICE HTA system, and whether it is achieving its original aim, can be informed in part by an assessment of the time elapsed between launch and publication of a technology appraisal. If NICE is acting as a so-called "fourth hurdle"[1] then the time taken to communicate to the NHS whether a medicine is deemed to be clinically and cost effective is important.

Second, we report on the time elapsed between the start and completion of the technology appraisal process itself. There are clear timelines for NICE processes that allow benchmarking of its performance in this respect. We are also able to examine questions such as whether the time elapsed during the decision process has changed over time; how it has been affected by the introduction of single technology appraisal (STA) process; and any specific factors impacting on whether the time taken in decision making is different between decisions .

This report provides summary statistics for the time elapsed between launch of a medicine to publication by NICE of a technology appraisal document, benchmarks the technology appraisal process speed, and explores whether there is any relationship between time elapsed and the various factors associated with the medicine under consideration.

The scope of this report is to provide descriptive statistics to inform debate on the issues raised. The data used to generate this report are a subset of a richer database.

[1] The first three "hurdles" needed to be negotiated before a medicine can be prescribed are regulatory approval, price setting and establishment of reimbursement conditions. Although NICE is not part of the regulatory and pricing and reimbursement process, it may create a further delay for the diffusion of a new technology and produce inequalities. This is because the NHS clinicians wait to start prescribing until a decision about the clinical and cost effectiveness of a new medicine is communicated.

2. DATA EXTRACTION

Our analysis of trends makes use of data extracted from the NICE website, including the tables of published appraisals and appraisals in development. Additional data were extracted from material produced by specific technology appraisals including the guidance document. Non-medicines have been excluded from the analysis. NICE may consider more than one medicine as part of a technology appraisal. Where this is the case, for each medicine considered a discrete entry was created. We have included reviews in the dataset, but these have been identified separately.

For completed appraisals, and covering the period March 2000 to December 2010, 284 separate entries were created. These were then used to create a database with 31 variables. For all launch and publication dates, the first of the month has been used in the calculations.

3. RESULTS

The results have been disaggregated into a report of time elapsed from launch to publication of a technology appraisal and benchmarking of NICE process time. For each there are three subsections:

- Overall time elapsed statistics
- Association of time elapsed with features of the NICE technology appraisal process, such as decision made looking at time trends and the cost effectiveness threshold used, and
- Whether there are any differences apparent according to the therapy class of the medicine appraised

Key findings:

Median time from launch to publication of guidance is 5.0 years. For Multiple Technology Appraisals (MTA) the median is 5.5 years and Single Technology Appraisals (STA) 2.6 years

Average time from start of HTA process to publication of guidance is 1.73 years. For MTA's the average is 1.97 years and STAs it is 0.96 years

For MTAs 19% are assessed within target time. For STAs it is 23%

Neither the MTA nor STA process time elapsed shows a change in trend over time (although this requires further analysis)

Characteristics that make the process relatively longer are: when a decision to restrict or not recommend usage of the medicine is reached; whether there is an appeal; and, for STAs, whether the sponsor company has applied for a patient access scheme to be considered

3.1 Time elapsed from launch to publication of guidance

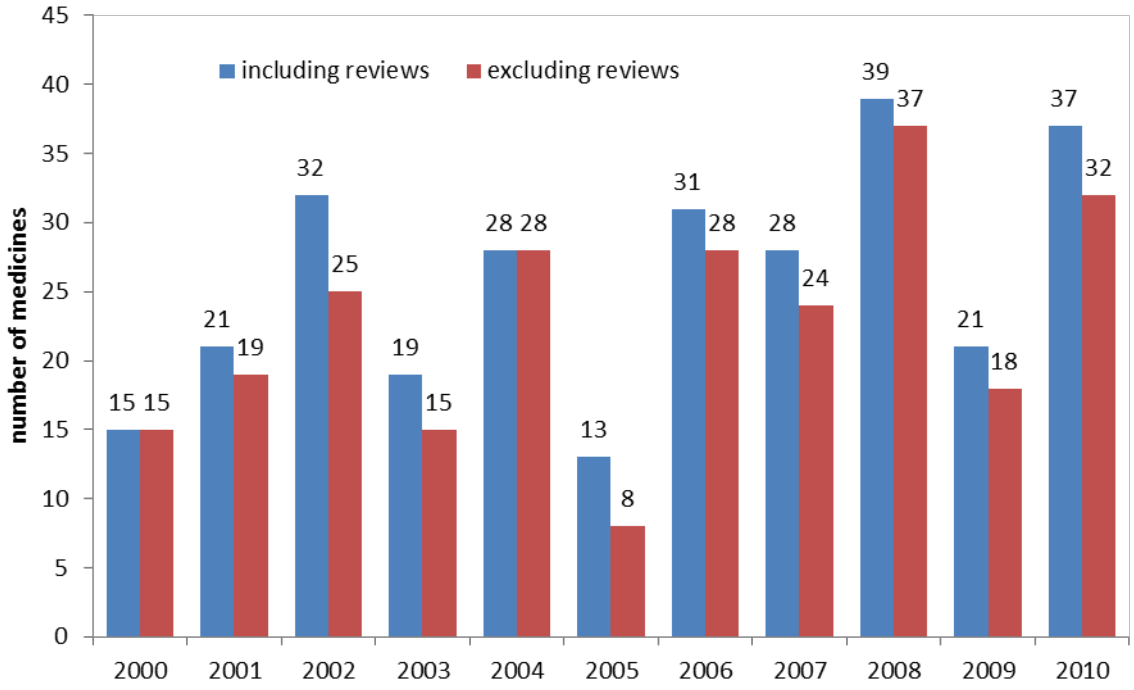
The results for time elapsed between launch of a new medicine and NICE publication of guidance to the NHS on it are reported below. The principal drivers for these results are a combination of (a) topic selection, that is, when the decisions are taken to appraise any given medicine and (b) the time taken in the HTA process itself. For the latter factor some associations between process and time elapsed since launch are reported in section 3.2. In comparison to the Scottish Medicines Consortium (SMC), NICE does not have a remit to appraise all medicines when launched or licensed for a new indication. Instead, topic selection is undertaken by the Department of Health. The scope of this report does not address the issue of actual uptake for NICE appraised medicines. If it is the case that uptake for a newly launched medicine is influenced by the timing of its consideration by NICE, then topic selection, and the time taken to complete the HTA, will be factors when considering whether the aim of faster access to modern treatment is being achieved.

3.1.1 Overall time elapsed statistics

Chart 1 plots the count of medicines included in the sample by year of publication of the technology appraisal: the higher blue bar shows all medicines in the sample and the lower red bar excludes medicines being re-reviewed. There are a smaller number of medicines in the sample for 2005 due to a general election and a relatively larger number of appraisals for non-medicines. 2005 was also a period of transition for NICE immediately preceding the introduction of the distinct single technology appraisal (STA) and multiple technology appraisal (MTA) processes in 2006.

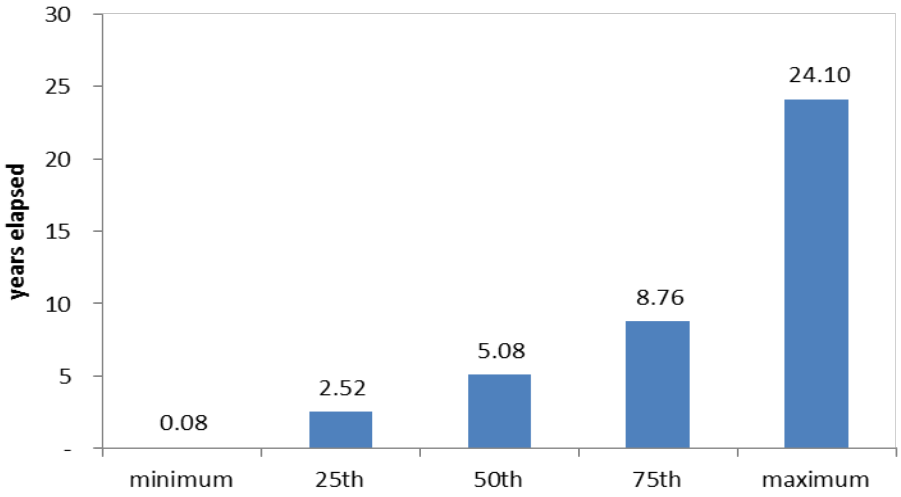
For all subsequent statistics the subset of entries excluding re-reviews has been used unless stated.

Chart 1: Count of medicines included in the analysis by year of publication of technology appraisal (n = 284 with re-reviews and 249 excluding re-reviews)



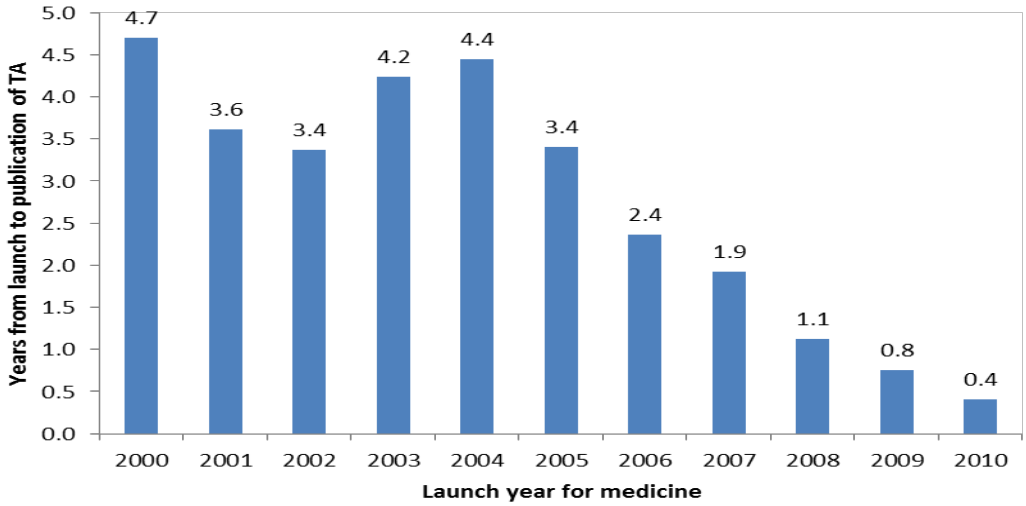
Plotting the time elapsed between launch of a medicine and publication of a technology appraisal for the sample, produces a wide range of results (Chart 2). **The median time elapsed is a little over five years.**

Chart 2: Distribution (years) for time elapsed between launch of medicine and publication of a technology appraisal by NICE



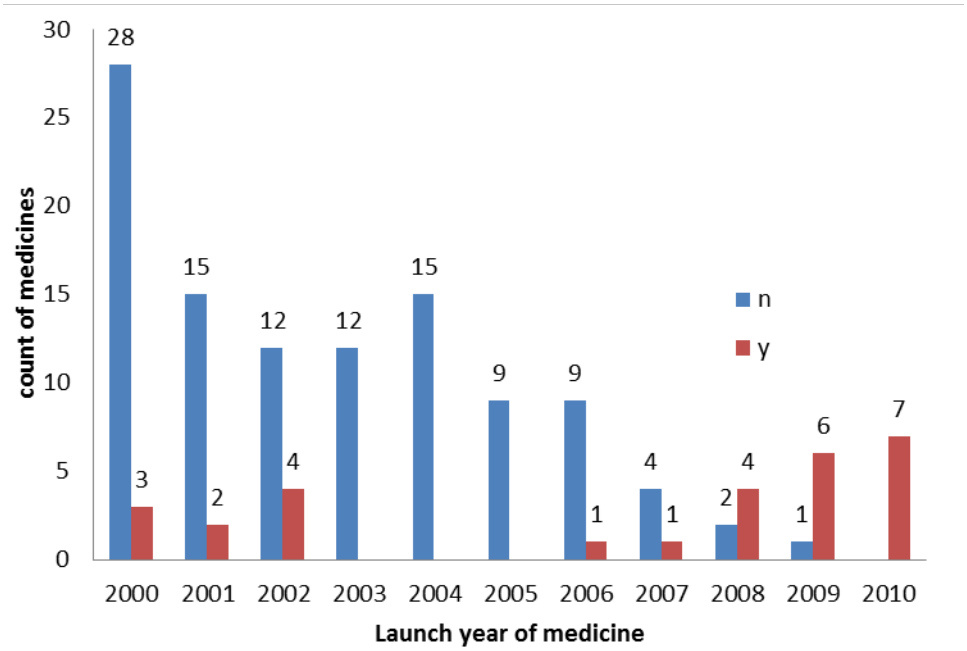
The wide spread is in large part due to the fact that NICE has assessed many medicines that had been launched in the UK before 1999. Consequently, descriptive statistics for medicines launched need to be interpreted with care. Furthermore, some medicines launched in recent years still are in the process of being appraised by NICE and therefore are not included in this dataset. An implication of this can be seen in Chart 3 where the average time from launch to completion of the HTA process for medicines launched between 2000 and 2005 stays broadly similar, but subsequently reduces dramatically when later years are included. The more recent the medicine's launch date, the more likely its appraisal is to be unfinished. This means that any recent changes in the time-elapsed measurements will not be captured completely.

Chart 3: Average time elapsed (years) from launch to publication of technology appraisal, by launch year of medicine and since 2000. Excluding appraisals under-development



As noted earlier in the report, a significant factor determining time elapsed from launch to publication is topic selection. Chart 4 plots medicines ordered by year of launch since 2000 into those that were not assessed within twelve months of launch (labelled "n") and those that were (labelled "y"). It shows that since 2006, and the introduction of the STA process, an increasing number of newer medicines are assessed close to launch.

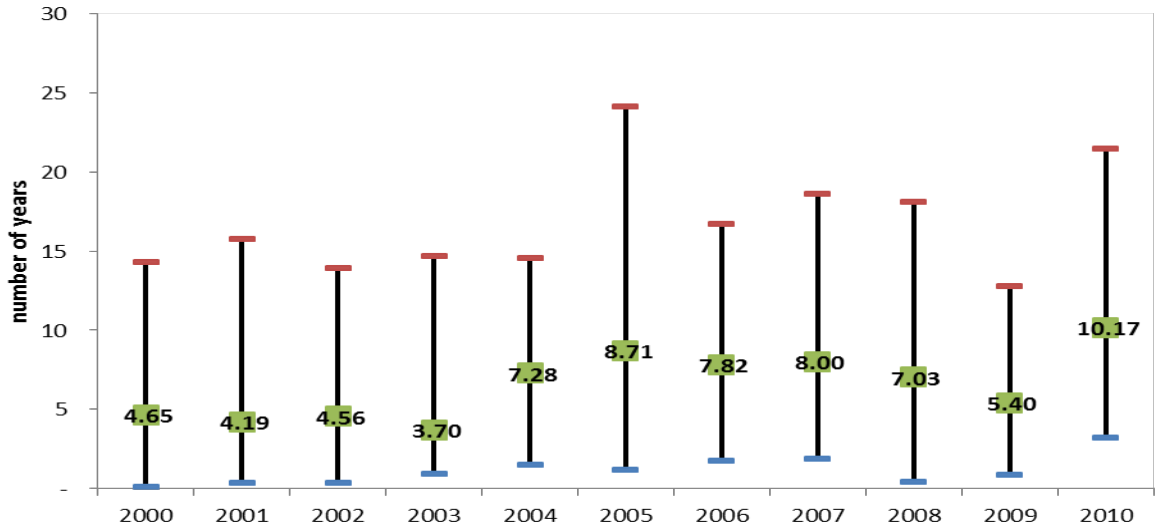
Chart 4: Medicines assessed by NICE and launched since 2000, classed into those where guidance was published within 12 months and those that were greater than 12 months



For the remainder of the current report, the results will be presented by year of publication of the technology appraisal and will include medicines launched prior to 2000.

Over the first eleven years of NICE there has not appeared to be a discernible change in the overall time elapsed between launch and publication of assessment, see Chart 5. As previously noted, 2005 is a relatively small sample. The results for 2005 also are affected by two technology appraisals where groups of medicines were assessed jointly and included older medicines (launched in 1961 and 1980).

Chart 5: Average, maximum and minimum time (years) from launch to publication of appraisal



3.1.2 NICE process and time elapsed

The most significant change to the NICE technology appraisal (TA) process came in 2006 when the STA and MTA processes were established. The STA process was introduced to facilitate more rapid assessment of newer medicines. Chart 6 plots the average time from launch to publication of TA guidance for MTAs and STAs. The mix of medicines for STAs is indeed much younger than for MTAs (Chart 7 and Chart 8).

Chart 6: Average time (years) from launch to publication of guidance – STA and MTA

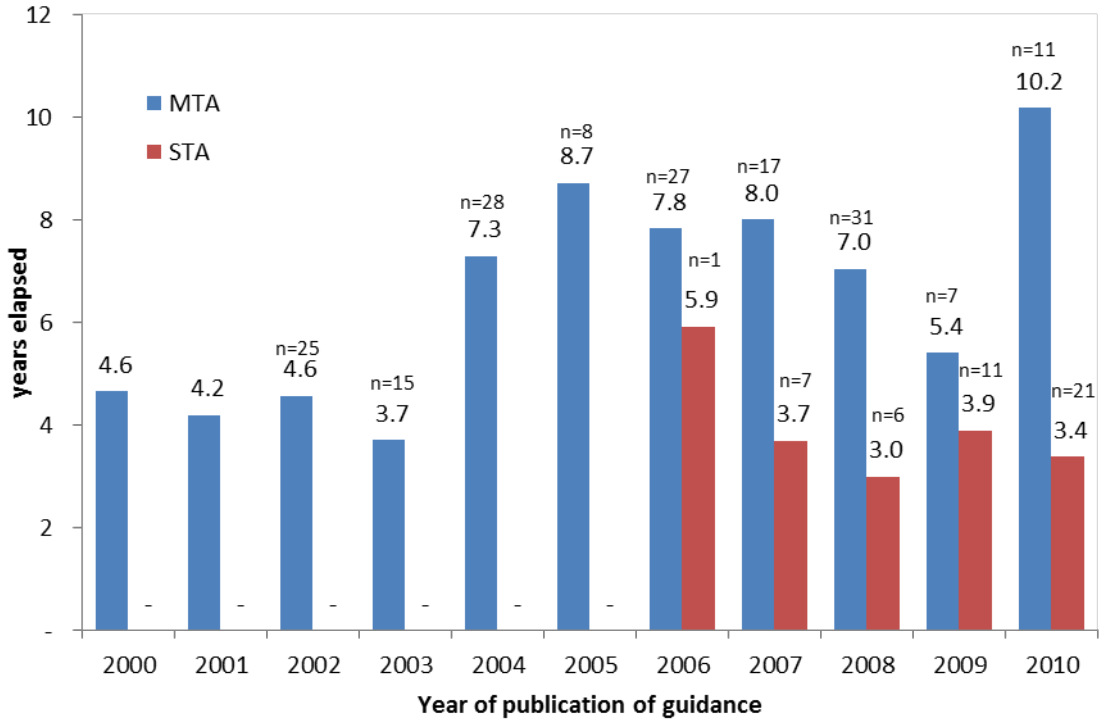


Chart 7: MTA ranges of time (years) from launch to publication, maximum/minimum and average (average reported)

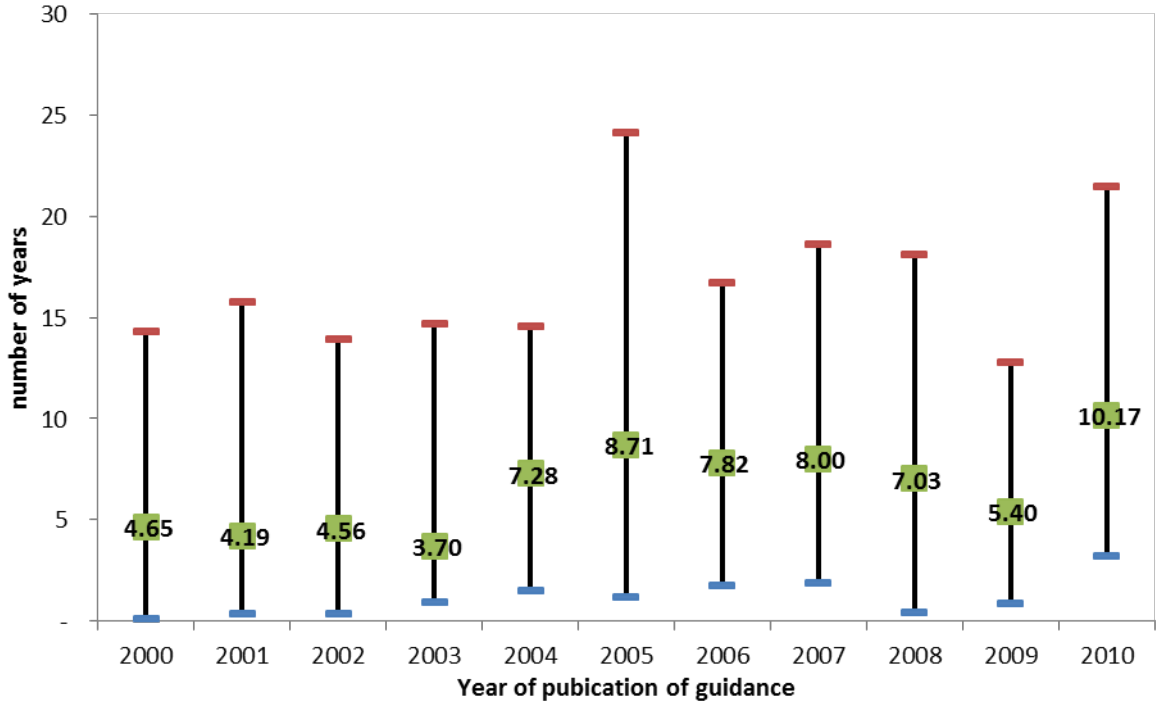
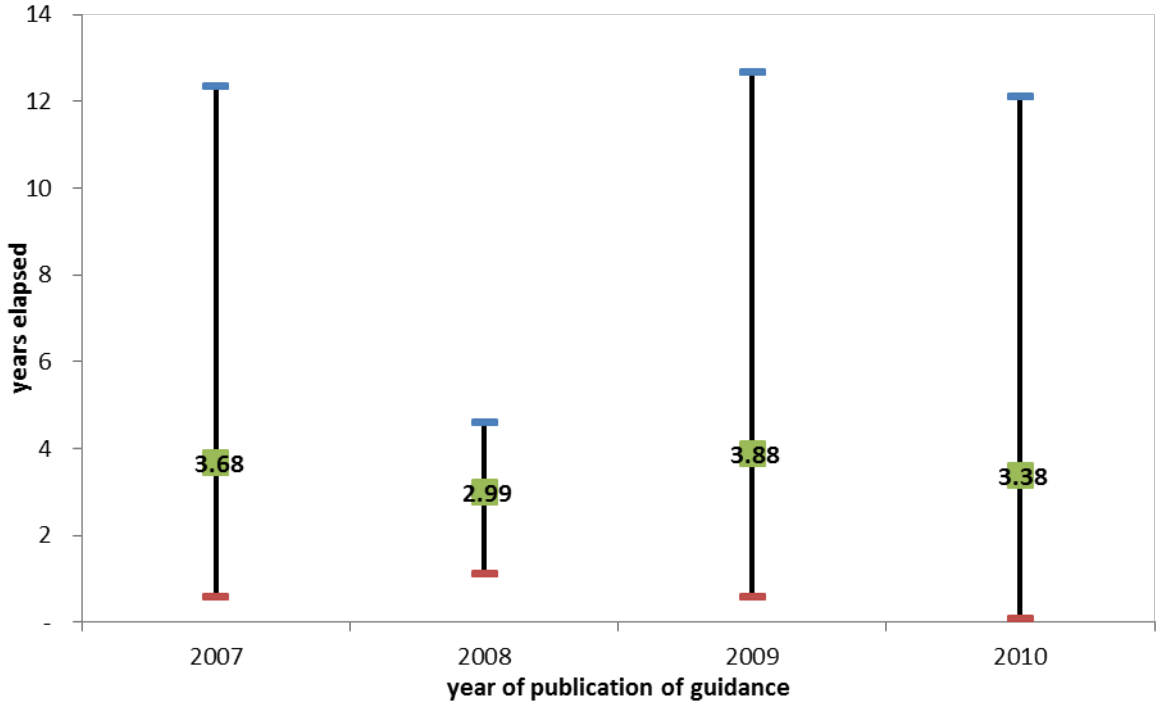


Chart 8: STA ranges of time (years) from launch to publication, maximum/minimum and average (average reported)



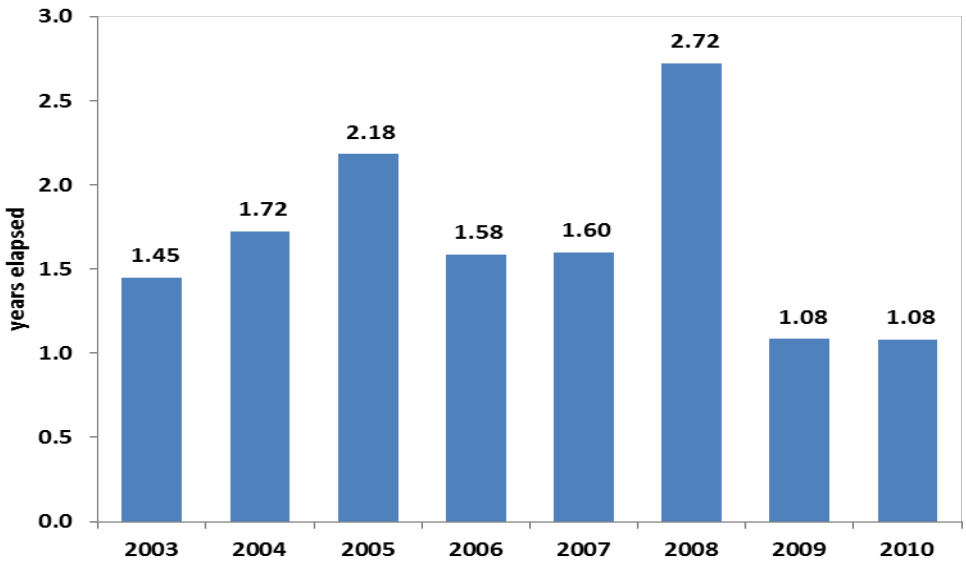
3.2 Time elapsed for NICE HTA process

The duration of the NICE HTA process is an important consideration when assessing the length of time between launch and publication of a technology appraisal. The following statistics report the time elapsed between the start and completion of an appraisal. In all instances, the start of the process has been defined as the publication of the scoping document by NICE. The "start" of a technology appraisal is not associated with a clearly identifiable event and the decision to use publication of the scoping document is pragmatic. It is a clear date reported by NICE and signals that NICE has determined the scope of the appraisal, and the process has formally commenced. It will be the case that some activity will occur prior to this date, but it is not possible to systematically identify and measure a prior event. This has meant that earlier technology appraisals (before 2003) have been excluded from the subsequent analysis.

3.2.1 Summary statistics

Chart 9 reports overall time elapsed between start and end of an appraisal for all appraisals. As the mix of MTAs and STAs has changed with an increasing number of the latter since 2006, the overall time has decreased on average. The exceptional, longer, reported average time in 2008 was the result of two technology appraisals with multiple products. **The average HTA process time is 1.73 years.**

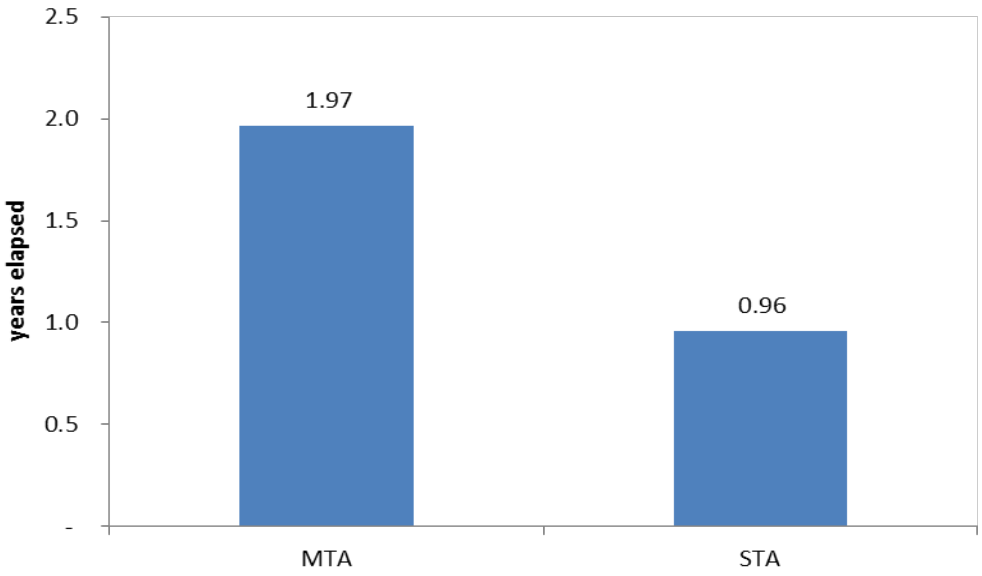
Chart 9: Average HTA process time for NICE (years)



3.2.2 NICE process characteristics

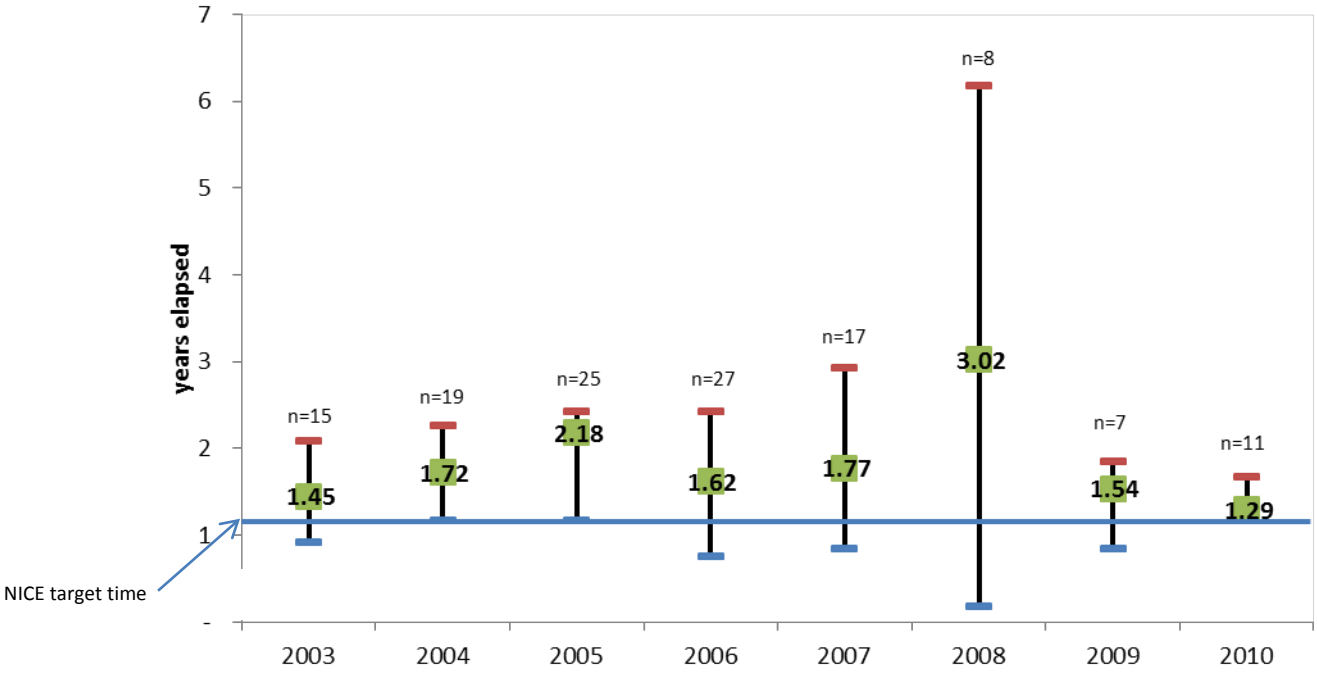
The STA process is, by design, more rapid than an MTA. To 2010 inclusive, an STA is on average a year faster than an MTA (Chart 10). The STA average is 49 days longer than the indicative timeline published by NICE (NICE, 2009a, Appendix 3) at 350 days compared to 301. The MTA average is 298 days longer than the indicative timeline (NICE, 2009b, Appendix 3) at 718 days compared to 420.

Chart 10: Average HTA process time for NICE (years) MTA and STA



Looking at the trend in MTA process timelines suggests that there has not been a significant change over time. The figures for 2006-2008 show wider ranges of times (particularly 2008) (Chart 10). This may in part be attributable to the changes in the TA process previously mentioned. The largest outlier for 2008 was for three anaemia medicines.

Chart 11: Time elapsed (years) for MTA process, maximum/minimum and average (average reported)



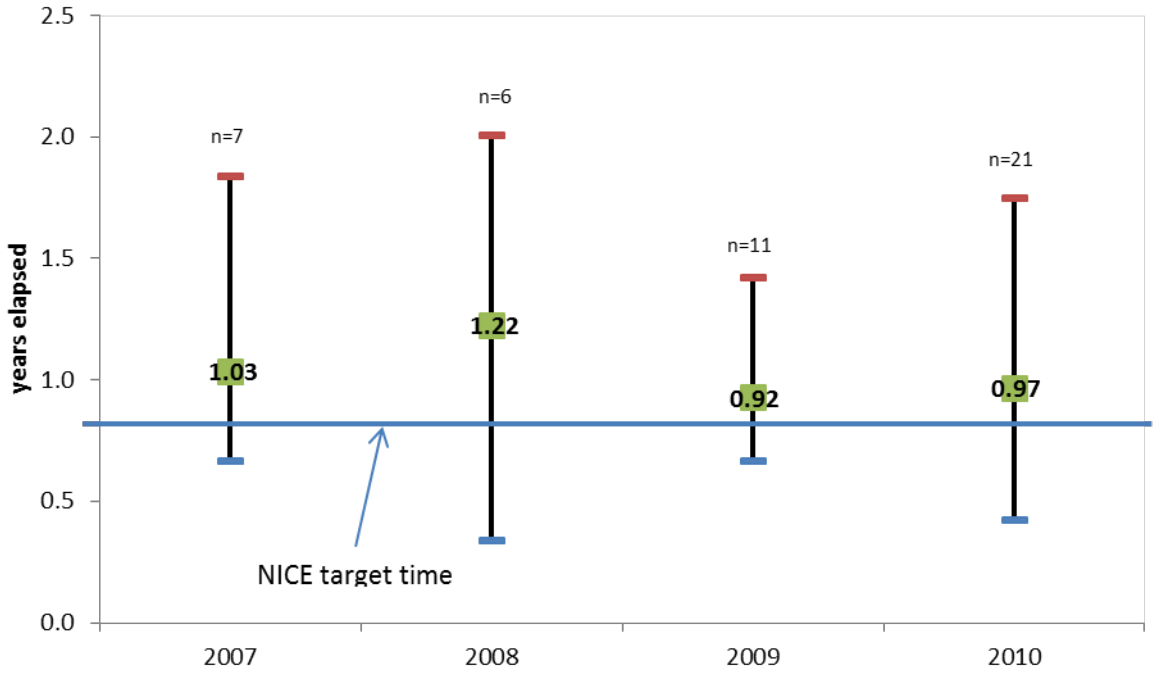
For MTA's, the range of time elapsed from scope to publication is shown in table 1. The results suggest that a little less than one quarter of appraisals are within the NICE target time. **19% of MTA appraisals meet the target time of 420 days.**

Table 1: Time elapsed range for MTA appraisals

quartile	days	years
min	61	0.17
25%	457	1.25
50%	610	1.67
75%	821	2.25
max	2,253	6.17

Like the MTA process, the time taken for an STA has been fairly consistent over the four years for which a range can be calculated[2] (Chart 12).

Chart 12: Time elapsed (years) for STA process, maximum/minimum and average (average reported)



The range of time elapsed from scope to publication is shown in table 2. The results suggest that one quarter of appraisals are within the NICE target time. **23% of STA appraisals meet the target time of 301 days.**

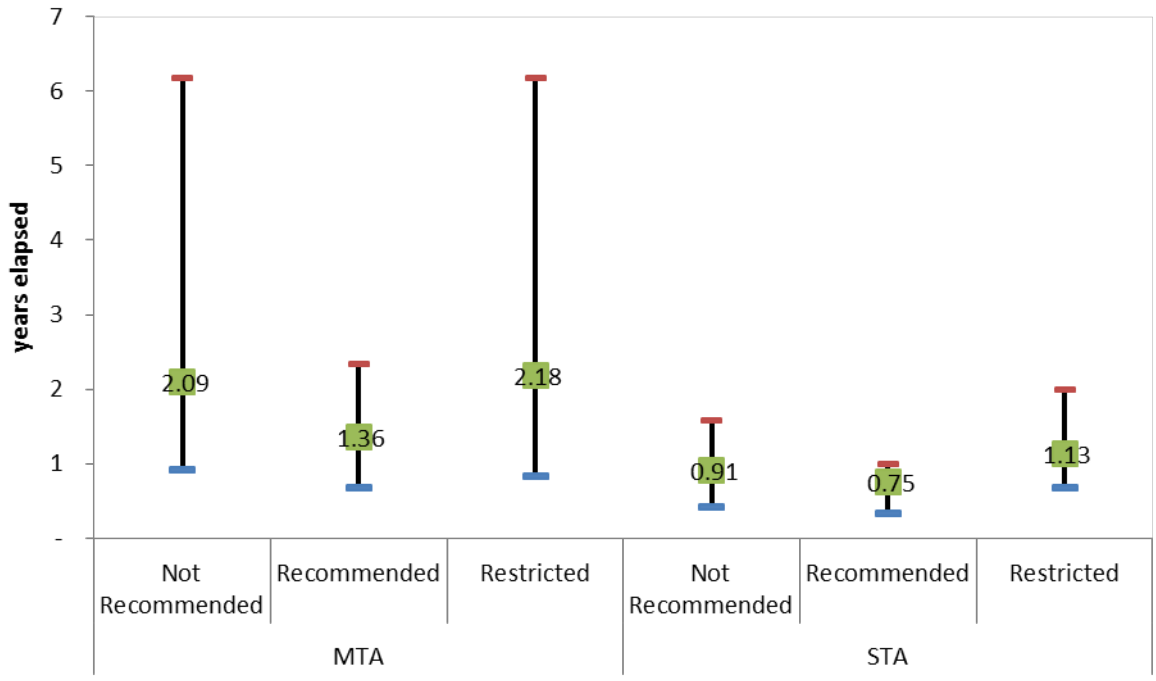
[2] 2006 figures have been omitted from the ranges analysis for STAs as a small sample

Table 2: Time elapsed range for STA appraisals

quartile	days	years
min	122	0.33
25%	304	0.83
50%	334	0.92
75%	404	1.11
max	731	2

As with the overall timeline statistics for MTAs and STAs, there does seem to be an association between the ultimate decision by NICE and the duration of the single technology appraisal process (Chart 13). For STAs, a restricted decision produces a broader range of time elapsed and on average a slightly longer length of time than the not-recommended decisions. Recommended decisions are the shortest duration STAs on average. The faster time taken to make a recommended decision may be a consequence of the need initially only for evidence from the manufacturer. A restricted decision will require the NICE decision support unit to assess the evidence, including adjusting the original manufacturer model.

Chart 13: Time elapsed (years) for STA and MTA process, maximum/minimum and average by decision (average reported) combined

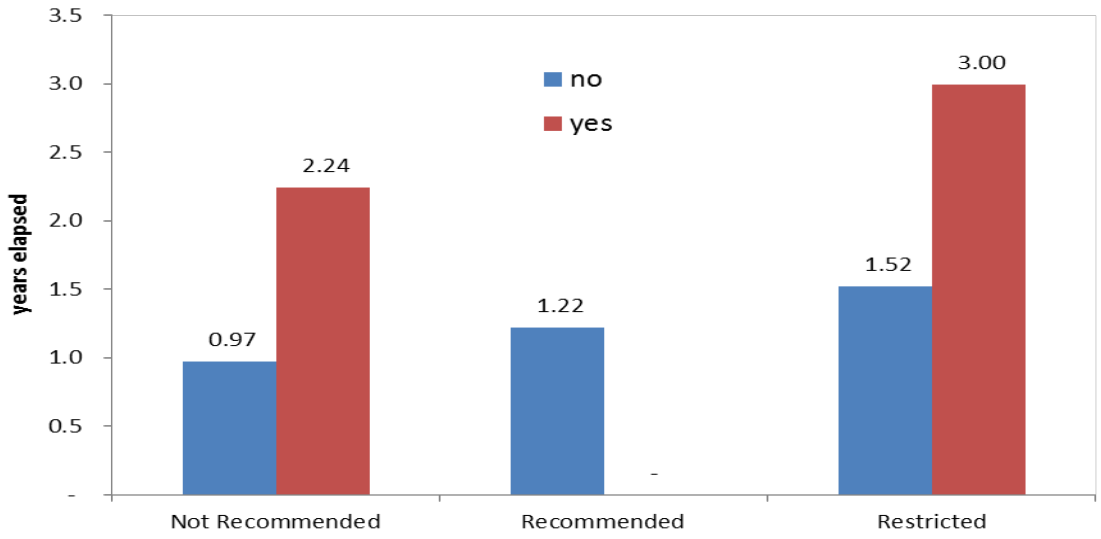


For MTAs, there appears to be a stronger association than for STAs between decision outcome and length of time to complete the process (Chart 13). Recommended decisions show a much narrower range of times than other decisions, and take the least time on average. Perhaps recommended decisions are less complex decisions. Generally, clinical and cost effectiveness evidence will be

stronger for "yes" decisions, will not require the manufacturer to supply additional evidence, will not be subject to appeal or other process addition such as a patient access scheme, nor will further modelling be necessary.

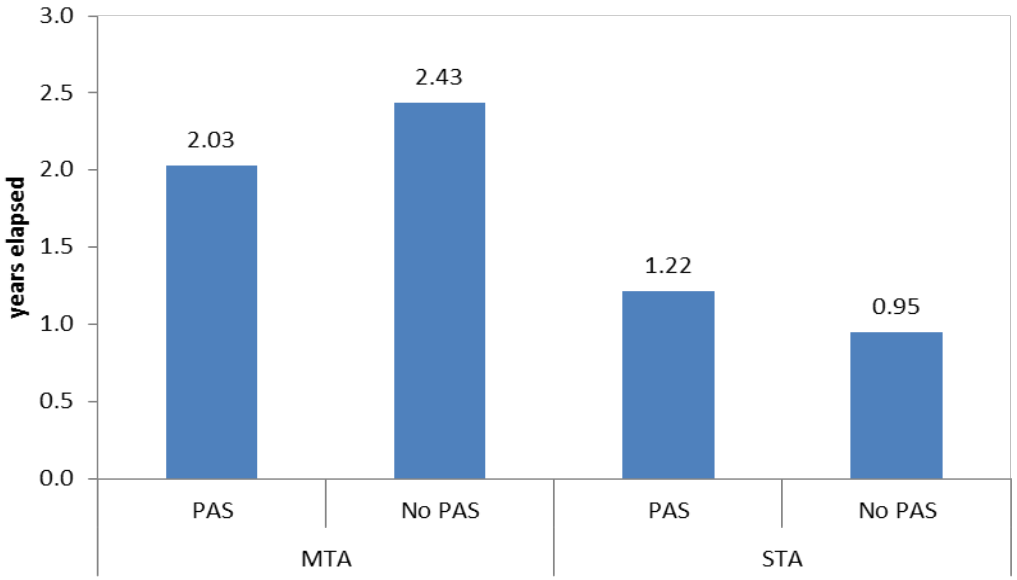
Unsurprisingly, an appraisal with an appeal lengthens the length of the overall process (Chart 14). This may not only be due to the time taken for administration of the appeal, but also to the complexity of the medicines.

Chart 14: Average HTA process time for NICE (years), appeal and no appeal



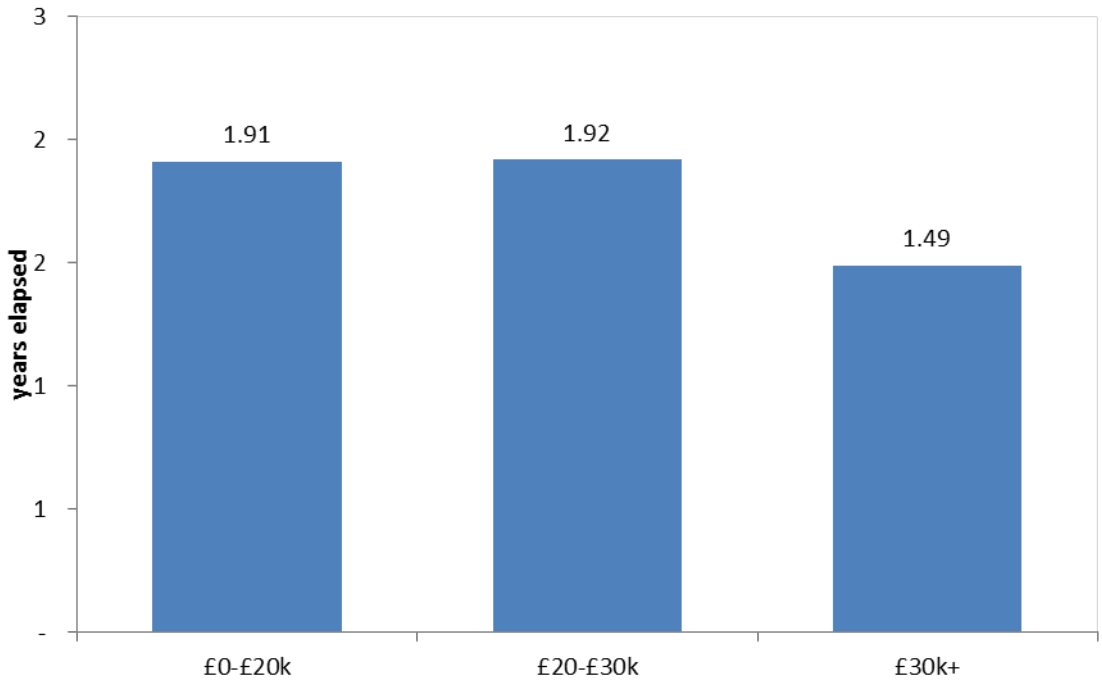
The results comparing process times for TAs where the manufacturer applies for a patient access scheme (PAS) is more ambivalent. Looking at all TAs since 2008, during which PAS applications became formalised, for MTAs the average time where a PAS has been applied is shorter, whilst for STAs the existence of a PAS has added around one-third of a year (Chart 15).

Chart 15: Average HTA process time for NICE (years) STA and MTA, patient access scheme applied 2008-2010



For a subset of the sample, it is possible to identify the decision incremental cost effectiveness ratio (ICER) used. There is a shorter time taken where the decision ICER is above £30k; note that the category £0-£20k includes dominant technologies (i.e. lower cost as well as greater benefit than the comparator) and the category greater than £30k includes dominated technologies (i.e. both higher cost and lower benefit than the comparator).

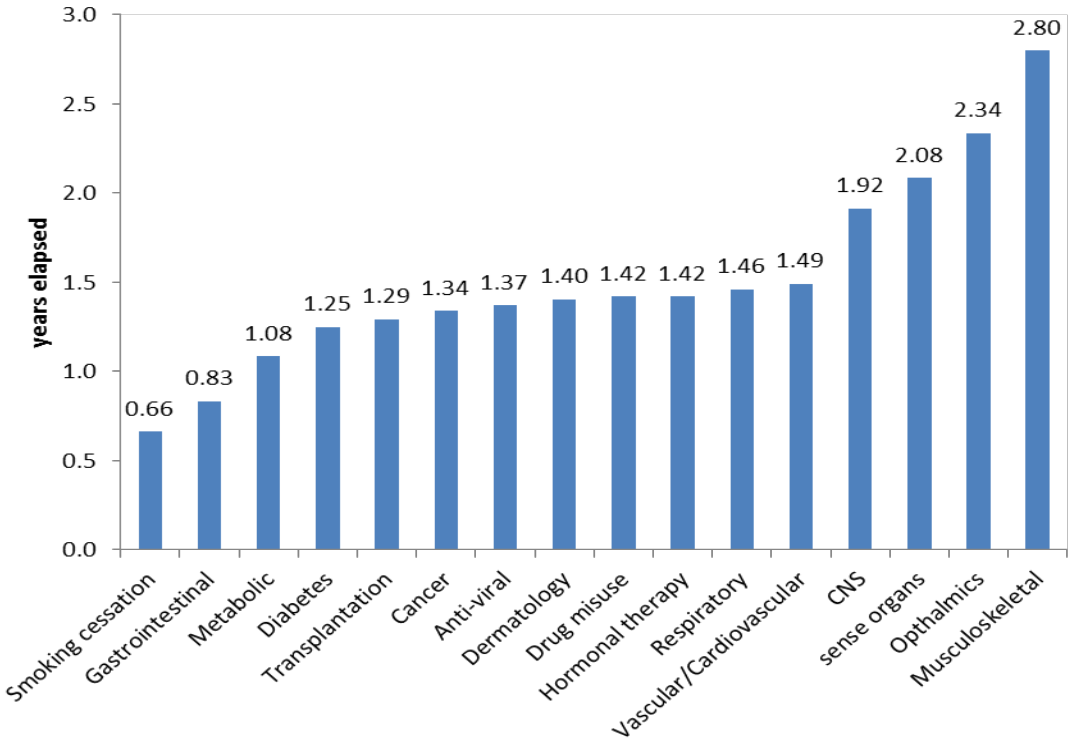
Chart 16: Average HTA process time for NICE (years), by decision ICER



3.2.3 Therapy class characteristics

There are significant variations in the average time taken for the NICE TA process according to the therapy class of the medicine (Chart 17). Some of the therapy areas displaying shorter average process times are small samples and so they should be treated with caution; these include smoking cessation, metabolic disorders, and transplantation. There have been a significant number of appraisals for medicines for musculoskeletal conditions (44 medicines), but these have included complex appraisals.

Chart 17: Average HTA process time for NICE (years) by therapy grouping



4. DISCUSSION

The statistics reported above show that over the eleven years 2000-2010 an average NICE technology appraisal was, for a medicine launched on the UK market, five years, taking between one and two years to be assessed. But as this report shows, there is a great deal of variation around this average. Chart 4 shows that NICE is considering more newer medicines and this may lead to a reduction in time elapsed, although further analysis would be required to conclude this.

The decision about which medicines should be appraised is not made by NICE. Whether the mix of older and newer medicines assessed is optimum to achieve the aim of reducing variation in access to innovative treatments is beyond the scope of this report; an assessment of the impact of NICE guidance on the usage of medicines that may have already established usage in the NHS together with time elapsed statistics would be interesting.

Given that in around two-thirds of cases NICE decides to restrict (or "optimise") usage of the medicine and that these restricted decisions are associated with longer process times may suggest that this should be the priority for benchmarking performance. Currently NICE suggests that on average the MTA process should take 420 days and the STA process 301 days. On average, neither of these targets is being achieved.

NICE's own targets of productivity are based on the time difference between when the invitation is issued to the manufacturer to participate in the appraisal and the first output of committee. First output is generally an ACD but can be a FAD in the STA process or final guidance if NICE has to terminate an appraisal. NICE has agreed HTA process metrics with the Department of Health for 2012/13. These take a "balanced scorecard" approach and will be reported in NICE public Board reports. Four of the targets relate to speed of output and are detailed in table 3 below.

Table 3: NICE "speed of production" targets for 2012/13

Speed of production	Target
% STAs for new cancer drugs issuing an ACD or FAD within 6 months of the product being first licensed in the UK	82%
% STAs for all other new drugs issuing an ACD or FAD within 6 months of the product being first licensed in the UK	73%
% of single technology appraisals from invitation of a manufacturers submission to ACD in 24 weeks, or where no ACD produced to FAD in 27 weeks	75%
% of multiple technology appraisals from invitation to participate to ACD in 41 weeks.	75%

From publicly available material it is not possible to identify the date when an invitation to participate has been generated and hence it has not been possible to incorporate this benchmark into our analysis. The speed of process targets cover the stages of the process over which NICE has complete control and are internally focused. The benchmarks in this analysis use events that have an external focus, notably publication of guidance that is the signal to the NHS to begin to follow the recommendations.

The Department of Health in England is committed to introducing value based pricing (VBP) in 2014 (DH, 2010). Although the details are still to be determined, the Department of Health does envisage a role for NICE in this process. Conceptually, the evidence base required, and decision process followed, for a medicine under VBP will have similarities to the current HTA process. As VBP introduces a formal pricing system for the UK, considerations of process time elapsed will be more important as it will be required to meet the requirements of the European Union "Transparency Directive" (Council of the European Communities, 1989). One of the three requirements of the directive is that decisions made by a pricing and reimbursement process should be made within a specific timeframe (90/180 days). Given that VBP will apply to *all* new medicines from 2014, whereas the NICE HTA process currently applies only to the subset that are prioritised in topic selection, arguably the timeliness of the NICE decision process becomes even more important.

Future research could apply more sophisticated statistical techniques to the dataset, enabling inclusion of not-yet-completed appraisals, to see whether firmer conclusions might then be made. In particular it will be interesting to assess whether the STA process is increasing the share of newer medicines assessed more rapidly.

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