

**UNIVERSITY OF BIRMINGHAM AND YORK HEALTH  
ECONOMICS CONSORTIUM**

**(National Collaborating Centre for Indicator Development)**

**Health economic report on piloted indicators**

**Pilot QOF indicator:** The percentage of patients with schizophrenia, bipolar affective disorder and other psychoses, aged 25 to 84 years, who have had a CVD risk assessment in the preceding 12 months.

**Potential output:** Recommendations for NICE Menu

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## Introduction and economic rationale for the indicator

This briefing paper presents a cost-effectiveness analysis for the following potential indicator from pilot 9 of the NICE Quality and Outcomes Framework (QOF) indicator development programme:

***The percentage of patients with schizophrenia, bipolar affective disorder and other psychoses, aged 25 to 84 years, who have had a CVD risk assessment in the preceding 12 months***

The economic analysis is based on evidence of delivery costs and evidence of benefits expressed as quality-adjusted life years (QALYs). Additionally, the economic analysis takes account of potential QOF payments based on a range of available QOF points and a range of levels of achievement.

The possible range of QOF points for this analysis was agreed with the economic subgroup of the NICE Advisory Committee on Indicator Development prior to the analysis being undertaken.

A net benefit approach is used whereby an indicator is considered cost-effective when net benefit is greater than zero for any given level of achievement and available QOF points:

$$\text{Net benefit} = \text{monetised benefit} - \text{delivery cost} - \text{QOF payment.}$$

The benefits and costs are reported per patient and the QOF payments per practice in the report, but for analysis purposes, these are all aggregated to the national (England) level to ensure consistency.

For this indicator, the net benefit analysis is applied with a lifetime horizon at baseline. This is because the available economic evidence is based on lifetime costs and benefits. It is recognised that this may raise issues about the cost-effectiveness of the indicator in subsequent years as the indicator incentivises the intervention on an annual basis. Much will depend on the incident level of new patients included in the denominator each year.

The objective is to evaluate whether the proposed indicator represents a cost-effective use of NHS resources. This report provides the Advisory Committee with information on whether the indicator is economically justifiable, and will inform the Committee's decision making on recommendations about the indicator.

It has been estimated that total health care cost of cardiovascular disease (CVD) to the UK was £14.4bn in 2006 [1].

Patients with schizophrenia, bipolar disorder and other psychoses are reported to be at higher risk of developing CVD [2,3]. NICE has recommended that people with a high risk of CVD are identified and provided with treatment to reduce that risk. CVD risk assessment for people with serious mental illness is likely to cost more than for the general population, with greater GP input into the process.

Should the CVD risk over 10 years be estimated to be greater than 10%, it is recommended that patients are treated with atorvastatin 20mg. All patients with prior CVD should be offered statin therapy. [4]

This potential QOF indicator would incentivise CVD risk assessment for people with the conditions identified. While risk assessment is recommended by the NICE guideline (and therefore cost-effectiveness will have been taken into account), this report considers the cost-effectiveness of this intervention when QOF achievement payments are also taken into account.

Summary of assumptions:

- Risk assessment is done using QRISK2 and treatment with atorvastatin 20mg is prescribed if 10 year risk >10%;
- Atorvastatin is not contraindicated or less effective in patients with psychoses or on anti-psychotic medications;
- Assessment is more costly for patients with psychoses than the general population but treatment costs for those at high risk of CVD are the same.

## **Evidence on Delivery Cost of Indicator**

The delivery cost of the indicator can be split into two parts:

- The cost of undertaking risk assessment;
- The cost of providing risk reducing therapy to appropriate patients.

Although the indicator only relates to assessment it is assumed that at risk patients will be treated in line with the recently updated guidance on lipid modification [4]. That guidance now explicitly states that the QRISK2 tool should be used for risk assessment.

A detailed economic model of both risk assessment and treatment was undertaken as part of the recent NICE lipid modification guideline [4]. The model was for all patients and not specifically those with the conditions covered by this indicator. As such the results are likely to underestimate the benefits to people in a higher risk group, such as those with the conditions considered as part of this indicator. Rather than try to modify the risk parameters within the model, it was decided to use the findings of the economic model from the NICE guideline in our modelling, recognising that this will be a conservative approach and will potentially underestimate the true benefits.

The guideline model examines results for both males and females, with assessment and treatment starting at different ages. The model found the most cost effective approach was to prescribe atorvastatin 20mg if the QRISK2 risk was 10% or greater. For a conservative estimate, the age and gender band that has the highest increase in costs for assessment and treatment (for women aged 60) has been chosen, where the estimate of additional cost of an assessment and treatment strategy over a patient's lifetime was £1,290 more than the cost of no assessment or treatment. The minimum additional cost was £997 per patient (for men aged 40).

In using the model in this way, assumptions were made that treatments considered were not contraindicated or had altered efficacy because of the presence of mental illness or medications taken to treat mental illness.

It could be argued that this is an overestimate of the true cost as the patients the QOF indicator is targeting are at higher risk of CVD events and so are more likely to benefit from assessment and treatment, thus averting costly cardiovascular sequelae in the future. Alternatively the cost could be an underestimate as targeted patients may be less likely to take their medication or adhere to it correctly. Sensitivity analysis was therefore used to explore the impact of the cost being 50% higher or lower than that assumed in the base case analysis.

The NICE economic model assumed that a nurse undertook the assessment. For patients with mental illness it has been assumed additionally that a further consultation with a GP would be required to discuss the importance of risk assessment and of potential treatment strategies. It has been assumed that this additional consultation is required regardless of whether treatment is recommended or not. The cost of this consultation has been assumed to equate to the equivalent of a GP consultation that lasts 17.2 minutes at a cost of £67 [5].

**Baseline costs:**

- The baseline cost of assessment of CVD risk and treatment in patients with schizophrenia, bipolar disorder or other psychoses was £1,357, over a patient's lifetime. This consists of the cost of assessment and treatment (£1,290) from the model in the NICE guideline on lipid modification, plus an additional GP appointment (£67).
- These costs include the costs averted from reductions in CVD events. They are based upon the use of the QRISK2 tool for risk assessment and treatment on atorvastatin 20mg if 10 year risk is 10% or greater.

**Evidence on the Benefits of the Indicator**

Benefits of the indicator focused on QALY gains, derived from the NICE model developed for the lipid modification guideline [4]. The model was for all patients and not specifically those with the conditions covered by this indicator.

For a conservative approach, the QALY value used was from the group with the lowest QALY gain from assessment and treatment (for males aged 70) where the lifetime estimate of QALY gain was 0.226 per patient on atorvastatin 20mg compared with no risk assessment and treatment. The highest QALY gain observed in the model was 0.557 per patient (for women aged 40).

Due to the uncertainty about whether assessment and treatment will be more or less effective in the QOF target group than the general population, sensitivity analysis examined QALY gains 50% higher and lower than that assumed in the base case.

**Baseline benefits:**

- The baseline benefit of assessment of CVD risk and treatment in patients with schizophrenia, bipolar disorder or other psychoses was 0.226 QALYs over a patient's lifetime;
- These benefits include QALY gains from reductions in CVD events and mortality and include the loss of QALYs due to adverse events from statin treatment. They are based upon the use of the QRISK2 tool for risk assessment and treatment with atorvastatin 20mg if the 10 year risk is 10% or greater.

**Eligible Population**

The eligible population (i.e. people who would make up the indicator denominator) are patients that are over 25 and under 85 who have schizophrenia, bipolar disorder or other psychoses, less any patients that for clinical reasons have been exception reported from the indicator denominator.

Data aggregated across 25 pilot practices showed the denominator after exception reporting equaled 0.54% of the total population in those 25 practices. As a sample of the total population in the UK, this figure was used in the baseline analysis with sensitivity analysis examining values 0.25% high and lower, ie. 0.29% and 0.79%.

## Baseline Level of Achievement

Pilot 9 data showed the indicator was achieved on average for 12.4% of eligible patients at the beginning of the pilot. Pilot achievement may not reflect a 12 month level of achievement as the pilot only examines activity over a short time period (three months).

## Population

In the base case, the economic analysis was based on the total practice population registered with practices in England, that is, 7,962 practices with an average practice size of 7,034 [6].

Table 1: Practice information for UK countries, 2013

| Country          | Number of practices | Number of patients |
|------------------|---------------------|--------------------|
| England          | 7,962               | 7,034              |
| Scotland         | 988                 | 5,622              |
| Wales            | 470                 | 6,762              |
| Northern Ireland | 351                 | 5,467              |

## QOF Payments

Each QOF point is assumed to result in a payment of £160.12. This is the value per point in England during 2015/16 (source: NHS Employers).

## Value of a QALY

The expected QALY gain from implementing this indicator was costed at £20,000 per QALY. This is based on the bottom of the range £20,000 to £30,000, below which NICE generally considers an intervention to be cost-effective.

So if we assume a QALY gain of 0.226 per patient over an 18 month period, the value of this QALY gain is £4,520 (0.226 x £20,000).

## **QOF Points**

The economic analysis considers the cost-effectiveness of incentivising the proposed activity over a range of QOF points.

In the base case analysis for the proposed indicator 6 points were allocated. This was considered to reflect similar current QOF indicators, such as:

- Patients diagnosed with hypertension who have a recorded CVD risk assessment score (CVD-PP001) for which 10 points are available;
- The QOF mental health indicators of ongoing management for aspects such as blood pressure and alcohol (MH003 and MH007), for which there are 4 points available.

Sensitivity analysis explored the agreed lower and upper bounds of 2 and 10 points respectively, as agreed with the economic subgroup of the Advisory Committee on Indicator Development.

## **Thresholds**

Although piloting indicated that achieving the indicator is difficult with a low level of achievement at baseline, a threshold range of 45% to 80% was used, as this is consistent with other indicators in the QOF.

## **Results (assuming a value per QALY of £20,000)**

Under the baseline assumptions of incremental delivery cost (£1,357), incremental benefit (0.226 QALYs with a value of £20,000 per QALY) and eligible population (0.54%), the net benefit analysis suggests that the indicator is highly cost-effective, with QOF payments at the base case of 6 points justifiable on economic grounds (Appendix A). Under the conservative modeling assumptions in the base case, the value of the increase in quality of life offered by the intervention outweighs the additional costs of assessment of CVD risk and treatment if that risk exceeds 10% over 10 years.

This result is insensitive to a 50% increase in cost (Appendix B), a 50% reduction in QALY gains per patient (Appendix C), a lower eligible population (Appendix D) or a worst case scenario of higher cost, lower QALY gains per patient and lower eligible population (Appendix E).

The indicator continues to be cost effective at the base case at 80% achievement up to 507 points or at 6 points if:

- The value per QALY is reduced 69.2% to £6,170;
- Intervention costs per patient are increased 230.5% to £4,483;
- The QALY gain per patient is reduced by 69.0% to 0.07;
- The eligible population is reduced by 98.2% to 0.01%.

## **Discussion and issues for consideration by the Committee**

Under the conservative baseline assumptions in this analysis there is economic evidence to offer the 6 points suggested for the indicator.

Given the conservative assumptions and the high level of cost effectiveness at 6 points, even if costs were significantly higher and benefits significantly lower the indicator can be strongly recommended on economic grounds. Consideration needs to be given as to whether more than 6 points may be appropriate to properly incentivise this indicator.

This report sets out some issues for consideration by the Committee:

- It is noted that the analysis focused on a 10% CVD risk for starting statin therapy. This is in line with NICE guidelines but may not reflect clinical practice if intervention is at higher or lower levels of risk. If statin intervention occurred at 20% risk, the NICE model on which our analysis was based suggests additional costs per patient of approximately £590 or £650 a year (men and women aged 60 respectively) with a QALY gain of approximately 0.45 or 0.53 (men and women aged 60 respectively). As the costs are lower and the QALY gains higher than we have assumed in our analysis, this suggests that statin intervention at 20% risk rather than 10% risk will make no difference to the findings.
- For statin intervention at lower risk (5%) costs are higher than assumed at baseline, with QALY gains broadly the same. However, the cost difference would only be £1,700 and the analysis showed that cost-effectiveness would be maintained even if costs increased to £4,483. This scenario would not, therefore, make any difference to our findings on cost-effectiveness.
- The indicator is an annual indicator, i.e. all people with these conditions should be risk assessed each year. While there will be some new people with these conditions each year, there will be a significant number of people who will have their risk assessed every year, so it is important to consider what the year-on-year effect of the indicator is. In the analysis presented in this report, lifetime costs and benefits have been assumed, based on the economic evidence relating to statin therapy. The Committee will need to consider the extent to which the estimated benefits may diminish over time if there is only a small number of new patients presenting each year.

## **References**

- [1] Coronary Heart Disease Statistics 2010, British Heart Foundation
- [2] National Institute for Health and Care Excellence. Clinical Guideline 178: Psychosis and schizophrenia in adults. 2014
- [3] National Institute for Health and Care Excellence. Clinical Guideline 185: Bipolar disorder. 2014
- [4] National Institute for Health and Care Excellence. Clinical Guideline 181: Lipid Modification: cardiovascular risk assessment and the primary and secondary prevention of cardiovascular disease. 2014
- [5] PSSRU. Unit Costs of Health and Social Care. 2014
- [6] General practice trends in the UK. NHS Information Centre. Published 31 October 2014

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**Appendix A: Net benefit analysis - Base case analysis**

**Pilot of Psychoses CVD Risk Assessment**

|                          |         |   |         |
|--------------------------|---------|---|---------|
| Value per point achieved | £160.12 | Societal value of a QALY                            | £20,000 |
| Number of practices      | 7,962   |   |         |
| Mean practice population | 7,034   |   |         |
| Minimum threshold        | 45%     | <b>Baseline achievement</b>                         |         |
| Maximum threshold        | 80%     | Eligible population (mean % of practice population) | 0.54%   |
|                          |         | Baseline achievement (mean % of eligible patients)  | 12.4%   |
|                          |         | <b>Cost-effectiveness estimates</b>                 |         |
|                          |         | Incremental cost (£ per patient)                    | £1,357  |
|                          |         | Incremental effect (QALYs per patient)              | 0.226   |

|        |   |   |   |   |   |   |   |   |    |
|--------|---|---|---|---|---|---|---|---|----|
| Points | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|--------|---|---|---|---|---|---|---|---|----|

**National totals**

| Expected Achievement | QOF payments (£000s) |        |        |        |        |        |         |         |         |              | Change in treatment cost (£) | Change in QALYs |
|----------------------|----------------------|--------|--------|--------|--------|--------|---------|---------|---------|--------------|------------------------------|-----------------|
| 30%                  | £0                   | £0     | £0     | £0     | £0     | £0     | £0      | £0      | £0      | £0           | £72,228,869                  | 12029           |
| 35%                  | £0                   | £0     | £0     | £0     | £0     | £0     | £0      | £0      | £0      | £0           | £92,748,434                  | 15447           |
| 40%                  | £0                   | £0     | £0     | £0     | £0     | £0     | £0      | £0      | £0      | £0           | £113,267,999                 | 18864           |
| 45%                  | £0                   | £0     | £0     | £0     | £0     | £0     | £0      | £0      | £0      | £0           | £133,787,564                 | 22281           |
| 50%                  | £364                 | £546   | £729   | £911   | £1,093 | £1,275 | £1,457  | £1,639  | £1,821  | £154,307,129 | 25699                        |                 |
| 55%                  | £729                 | £1,093 | £1,457 | £1,821 | £2,186 | £2,550 | £2,914  | £3,278  | £3,643  | £174,826,693 | 29116                        |                 |
| 60%                  | £1,093               | £1,639 | £2,186 | £2,732 | £3,278 | £3,825 | £4,371  | £4,917  | £5,464  | £195,346,258 | 32534                        |                 |
| 65%                  | £1,457               | £2,186 | £2,914 | £3,643 | £4,371 | £5,100 | £5,828  | £6,557  | £7,285  | £215,865,823 | 35951                        |                 |
| 70%                  | £1,821               | £2,732 | £3,643 | £4,553 | £5,464 | £6,374 | £7,285  | £8,196  | £9,106  | £236,385,388 | 39369                        |                 |
| 75%                  | £2,186               | £3,278 | £4,371 | £5,464 | £6,557 | £7,649 | £8,742  | £9,835  | £10,928 | £256,904,953 | 42786                        |                 |
| 80%                  | £2,550               | £3,825 | £5,100 | £6,374 | £7,649 | £8,924 | £10,199 | £11,474 | £12,749 | £277,424,518 | 46203                        |                 |
| 85%                  | £2,550               | £3,825 | £5,100 | £6,374 | £7,649 | £8,924 | £10,199 | £11,474 | £12,749 | £297,944,083 | 49621                        |                 |
| 90%                  | £2,550               | £3,825 | £5,100 | £6,374 | £7,649 | £8,924 | £10,199 | £11,474 | £12,749 | £318,463,648 | 53038                        |                 |
| 95%                  | £2,550               | £3,825 | £5,100 | £6,374 | £7,649 | £8,924 | £10,199 | £11,474 | £12,749 | £338,983,213 | 56456                        |                 |
| 100%                 | £2,550               | £3,825 | £5,100 | £6,374 | £7,649 | £8,924 | £10,199 | £11,474 | £12,749 | £359,502,778 | 59873                        |                 |

**Net Benefit (£000s)**

|      |          |          |          |          |          |          |          |          |          |          |
|------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 30%  | £168,357 | £168,357 | £168,357 | £168,357 | £168,357 | £168,357 | £168,357 | £168,357 | £168,357 | £168,357 |
| 35%  | £216,185 | £216,185 | £216,185 | £216,185 | £216,185 | £216,185 | £216,185 | £216,185 | £216,185 | £216,185 |
| 40%  | £264,014 | £264,014 | £264,014 | £264,014 | £264,014 | £264,014 | £264,014 | £264,014 | £264,014 | £264,014 |
| 45%  | £311,842 | £311,842 | £311,842 | £311,842 | £311,842 | £311,842 | £311,842 | £311,842 | £311,842 | £311,842 |
| 50%  | £359,307 | £359,125 | £358,942 | £358,760 | £358,578 | £358,396 | £358,214 | £358,032 | £357,850 | £357,668 |
| 55%  | £406,771 | £406,407 | £406,043 | £405,678 | £405,314 | £404,950 | £404,586 | £404,221 | £403,857 | £403,493 |
| 60%  | £454,235 | £453,689 | £453,143 | £452,596 | £452,050 | £451,503 | £450,957 | £450,411 | £449,864 | £449,318 |
| 65%  | £501,700 | £500,971 | £500,243 | £499,514 | £498,786 | £498,057 | £497,329 | £496,600 | £495,872 | £495,144 |
| 70%  | £549,164 | £548,253 | £547,343 | £546,432 | £545,521 | £544,611 | £543,700 | £542,790 | £541,879 | £540,968 |
| 75%  | £596,628 | £595,536 | £594,443 | £593,350 | £592,257 | £591,165 | £590,072 | £588,979 | £587,886 | £586,794 |
| 80%  | £644,093 | £642,818 | £641,543 | £640,268 | £638,993 | £637,718 | £636,443 | £635,169 | £633,894 | £632,619 |
| 85%  | £691,921 | £690,646 | £689,371 | £688,097 | £686,822 | £685,547 | £684,272 | £682,997 | £681,722 | £680,447 |
| 90%  | £739,750 | £738,475 | £737,200 | £735,925 | £734,650 | £733,375 | £732,101 | £730,826 | £729,551 | £728,276 |
| 95%  | £787,578 | £786,304 | £785,029 | £783,754 | £782,479 | £781,204 | £779,929 | £778,654 | £777,379 | £776,104 |
| 100% | £835,407 | £834,132 | £832,857 | £831,582 | £830,307 | £829,033 | £827,758 | £826,483 | £825,208 | £823,933 |

Where the net benefit produces a non-negative outcome then it is cost effective for the NHS to adopt the indicator.

When this is the case, the cells are highlighted with a yellow background.

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**Appendix B: Net benefit analysis - Costs increased by 50%**

**Pilot of Psychoses CVD Risk Assessment**

|                          |         |   |         |
|--------------------------|---------|---|---------|
| Value per point achieved | £160.12 | Societal value of a QALY                            | £20,000 |
| Number of practices      | 7,962   |   |         |
| Mean practice population | 7,034   |   |         |
| Minimum threshold        | 45%     | <b>Baseline achievement</b>                         |         |
| Maximum threshold        | 80%     | Eligible population (mean % of practice population) | 0.54%   |
|                          |         | Baseline achievement (mean % of eligible patients)  | 12.4%   |
|                          |         | <b>Cost-effectiveness estimates</b>                 |         |
|                          |         | Incremental cost (£ per patient)                    | £2,036  |
|                          |         | Incremental effect (QALYs per patient)              | 0.226   |

Points: 2 3 4 5 6 7 8 9 10

| National totals      |                      |        |        |        |        |        |         |         |         |              |                              |                 |
|----------------------|----------------------|--------|--------|--------|--------|--------|---------|---------|---------|--------------|------------------------------|-----------------|
| Expected Achievement | QOF payments (£000s) |        |        |        |        |        |         |         |         |              | Change in treatment cost (£) | Change in QALYs |
| 30%                  | £0                   | £0     | £0     | £0     | £0     | £0     | £0      | £0      | £0      | £0           | £108,343,303                 | 12029           |
| 35%                  | £0                   | £0     | £0     | £0     | £0     | £0     | £0      | £0      | £0      | £0           | £139,122,650                 | 15447           |
| 40%                  | £0                   | £0     | £0     | £0     | £0     | £0     | £0      | £0      | £0      | £0           | £169,901,998                 | 18864           |
| 45%                  | £0                   | £0     | £0     | £0     | £0     | £0     | £0      | £0      | £0      | £0           | £200,681,345                 | 22281           |
| 50%                  | £364                 | £546   | £729   | £911   | £1,093 | £1,275 | £1,457  | £1,639  | £1,821  | £231,460,693 | 25699                        |                 |
| 55%                  | £729                 | £1,093 | £1,457 | £1,821 | £2,186 | £2,550 | £2,914  | £3,278  | £3,643  | £262,240,040 | 29116                        |                 |
| 60%                  | £1,093               | £1,639 | £2,186 | £2,732 | £3,278 | £3,825 | £4,371  | £4,917  | £5,464  | £293,019,388 | 32534                        |                 |
| 65%                  | £1,457               | £2,186 | £2,914 | £3,643 | £4,371 | £5,100 | £5,828  | £6,557  | £7,285  | £323,798,735 | 35951                        |                 |
| 70%                  | £1,821               | £2,732 | £3,643 | £4,553 | £5,464 | £6,374 | £7,285  | £8,196  | £9,106  | £354,578,083 | 39369                        |                 |
| 75%                  | £2,186               | £3,278 | £4,371 | £5,464 | £6,557 | £7,649 | £8,742  | £9,835  | £10,928 | £385,357,430 | 42786                        |                 |
| 80%                  | £2,550               | £3,825 | £5,100 | £6,374 | £7,649 | £8,924 | £10,199 | £11,474 | £12,749 | £416,136,777 | 46203                        |                 |
| 85%                  | £2,550               | £3,825 | £5,100 | £6,374 | £7,649 | £8,924 | £10,199 | £11,474 | £12,749 | £446,916,125 | 49621                        |                 |
| 90%                  | £2,550               | £3,825 | £5,100 | £6,374 | £7,649 | £8,924 | £10,199 | £11,474 | £12,749 | £477,695,472 | 53038                        |                 |
| 95%                  | £2,550               | £3,825 | £5,100 | £6,374 | £7,649 | £8,924 | £10,199 | £11,474 | £12,749 | £508,474,820 | 56456                        |                 |
| 100%                 | £2,550               | £3,825 | £5,100 | £6,374 | £7,649 | £8,924 | £10,199 | £11,474 | £12,749 | £539,254,167 | 59873                        |                 |

| Net Benefit (£000s) |          |          |          |          |          |          |          |          |          |          |          |          |
|---------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 30%                 | £132,242 | £132,242 | £132,242 | £132,242 | £132,242 | £132,242 | £132,242 | £132,242 | £132,242 | £132,242 | £132,242 | £132,242 |
| 35%                 | £169,811 | £169,811 | £169,811 | £169,811 | £169,811 | £169,811 | £169,811 | £169,811 | £169,811 | £169,811 | £169,811 | £169,811 |
| 40%                 | £207,380 | £207,380 | £207,380 | £207,380 | £207,380 | £207,380 | £207,380 | £207,380 | £207,380 | £207,380 | £207,380 | £207,380 |
| 45%                 | £244,949 | £244,949 | £244,949 | £244,949 | £244,949 | £244,949 | £244,949 | £244,949 | £244,949 | £244,949 | £244,949 | £244,949 |
| 50%                 | £282,153 | £281,971 | £281,789 | £281,607 | £281,425 | £281,242 | £281,060 | £280,878 | £280,696 | £280,514 | £280,332 | £280,150 |
| 55%                 | £319,358 | £318,993 | £318,629 | £318,265 | £317,901 | £317,536 | £317,172 | £316,808 | £316,444 | £316,080 | £315,716 | £315,352 |
| 60%                 | £356,562 | £356,016 | £355,469 | £354,923 | £354,377 | £353,830 | £353,284 | £352,738 | £352,191 | £351,645 | £351,099 | £350,553 |
| 65%                 | £393,767 | £393,038 | £392,310 | £391,581 | £390,853 | £390,124 | £389,396 | £388,667 | £387,939 | £387,210 | £386,482 | £385,754 |
| 70%                 | £430,971 | £430,061 | £429,150 | £428,239 | £427,329 | £426,418 | £425,508 | £424,597 | £423,686 | £422,776 | £421,865 | £420,955 |
| 75%                 | £468,176 | £467,083 | £466,990 | £466,898 | £466,805 | £466,712 | £466,619 | £466,527 | £466,434 | £466,342 | £466,250 | £466,158 |
| 80%                 | £505,380 | £504,106 | £502,831 | £501,556 | £500,281 | £499,006 | £497,731 | £496,456 | £495,181 | £493,906 | £492,631 | £491,356 |
| 85%                 | £542,949 | £541,674 | £540,399 | £539,125 | £537,850 | £536,575 | £535,300 | £534,025 | £532,750 | £531,475 | £530,200 | £528,925 |
| 90%                 | £580,518 | £579,243 | £577,968 | £576,693 | £575,418 | £574,144 | £572,869 | £571,594 | £570,319 | £569,044 | £567,769 | £566,494 |
| 95%                 | £618,087 | £616,812 | £615,537 | £614,262 | £612,987 | £611,712 | £610,437 | £609,163 | £607,888 | £606,613 | £605,338 | £604,063 |
| 100%                | £655,656 | £654,381 | £653,106 | £651,831 | £650,556 | £649,281 | £648,006 | £646,731 | £645,456 | £644,181 | £642,906 | £641,631 |

Where the net benefit produces a non-negative outcome then it is cost effective for the NHS to adopt the indicator.

When this is the case, the cells are highlighted with a yellow background.

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Appendix C: Net benefit analysis – QALY benefit decreased by 50%

Pilot of Psychoses CVD Risk Assessment

|                          |         |   |         |
|--------------------------|---------|---|---------|
| Value per point achieved | £160.12 | Societal value of a QALY                            | £20,000 |
| Number of practices      | 7,962   |   |         |
| Mean practice population | 7,034   |   |         |
| Minimum threshold        | 45%     | <b>Baseline achievement</b>                         |         |
| Maximum threshold        | 80%     | Eligible population (mean % of practice population) | 0.54%   |
|                          |         | Baseline achievement (mean % of eligible patients)  | 12.4%   |
|                          |         | <b>Cost-effectiveness estimates</b>                 |         |
|                          |         | Incremental cost (£ per patient)                    | £1,357  |
|                          |         | Incremental effect (QALYs per patient)              | 0.113   |

|        |   |   |   |   |   |   |   |   |    |
|--------|---|---|---|---|---|---|---|---|----|
| Points | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|--------|---|---|---|---|---|---|---|---|----|

| National totals      |                      |        |        |        |        |        |         |         |         |                              |                 |
|----------------------|----------------------|--------|--------|--------|--------|--------|---------|---------|---------|------------------------------|-----------------|
| Expected Achievement | QOF payments (£000s) |        |        |        |        |        |         |         |         | Change in treatment cost (£) | Change in QALYs |
| 30%                  | £0                   | £0     | £0     | £0     | £0     | £0     | £0      | £0      | £0      | £72,228,869                  | 6015            |
| 35%                  | £0                   | £0     | £0     | £0     | £0     | £0     | £0      | £0      | £0      | £92,748,434                  | 7723            |
| 40%                  | £0                   | £0     | £0     | £0     | £0     | £0     | £0      | £0      | £0      | £113,267,999                 | 9432            |
| 45%                  | £0                   | £0     | £0     | £0     | £0     | £0     | £0      | £0      | £0      | £133,787,564                 | 11141           |
| 50%                  | £364                 | £546   | £729   | £911   | £1,093 | £1,275 | £1,457  | £1,639  | £1,821  | £154,307,129                 | 12849           |
| 55%                  | £729                 | £1,093 | £1,457 | £1,821 | £2,186 | £2,550 | £2,914  | £3,278  | £3,643  | £174,826,693                 | 14558           |
| 60%                  | £1,093               | £1,639 | £2,186 | £2,732 | £3,278 | £3,825 | £4,371  | £4,917  | £5,464  | £195,346,258                 | 16267           |
| 65%                  | £1,457               | £2,186 | £2,914 | £3,643 | £4,371 | £5,100 | £5,828  | £6,557  | £7,285  | £215,865,823                 | 17976           |
| 70%                  | £1,821               | £2,732 | £3,643 | £4,553 | £5,464 | £6,374 | £7,285  | £8,196  | £9,106  | £236,385,388                 | 19684           |
| 75%                  | £2,186               | £3,278 | £4,371 | £5,464 | £6,557 | £7,649 | £8,742  | £9,835  | £10,928 | £256,904,953                 | 21393           |
| 80%                  | £2,550               | £3,825 | £5,100 | £6,374 | £7,649 | £8,924 | £10,199 | £11,474 | £12,749 | £277,424,518                 | 23102           |
| 85%                  | £2,550               | £3,825 | £5,100 | £6,374 | £7,649 | £8,924 | £10,199 | £11,474 | £12,749 | £297,944,083                 | 24810           |
| 90%                  | £2,550               | £3,825 | £5,100 | £6,374 | £7,649 | £8,924 | £10,199 | £11,474 | £12,749 | £318,463,648                 | 26519           |
| 95%                  | £2,550               | £3,825 | £5,100 | £6,374 | £7,649 | £8,924 | £10,199 | £11,474 | £12,749 | £338,983,213                 | 28228           |
| 100%                 | £2,550               | £3,825 | £5,100 | £6,374 | £7,649 | £8,924 | £10,199 | £11,474 | £12,749 | £359,502,778                 | 29936           |

| Net Benefit (£000s) |          |          |          |          |          |          |          |          |          |          |
|---------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 30%                 | £48,064  | £48,064  | £48,064  | £48,064  | £48,064  | £48,064  | £48,064  | £48,064  | £48,064  | £48,064  |
| 35%                 | £61,718  | £61,718  | £61,718  | £61,718  | £61,718  | £61,718  | £61,718  | £61,718  | £61,718  | £61,718  |
| 40%                 | £75,373  | £75,373  | £75,373  | £75,373  | £75,373  | £75,373  | £75,373  | £75,373  | £75,373  | £75,373  |
| 45%                 | £89,027  | £89,027  | £89,027  | £89,027  | £89,027  | £89,027  | £89,027  | £89,027  | £89,027  | £89,027  |
| 50%                 | £102,318 | £102,136 | £101,953 | £101,771 | £101,589 | £101,407 | £101,225 | £101,043 | £100,861 | £100,679 |
| 55%                 | £115,608 | £115,244 | £114,879 | £114,515 | £114,151 | £113,787 | £113,422 | £113,058 | £112,694 | £112,330 |
| 60%                 | £128,898 | £128,352 | £127,805 | £127,259 | £126,713 | £126,166 | £125,620 | £125,074 | £124,527 | £123,981 |
| 65%                 | £142,188 | £141,460 | £140,731 | £140,003 | £139,274 | £138,546 | £137,817 | £137,089 | £136,360 | £135,632 |
| 70%                 | £155,478 | £154,568 | £153,657 | £152,747 | £151,836 | £150,926 | £150,015 | £149,104 | £148,194 | £147,283 |
| 75%                 | £168,769 | £167,676 | £166,583 | £165,491 | £164,398 | £163,305 | £162,212 | £161,120 | £160,027 | £158,934 |
| 80%                 | £182,059 | £180,784 | £179,509 | £178,235 | £176,960 | £175,685 | £174,410 | £173,135 | £171,860 | £170,585 |
| 85%                 | £195,714 | £194,439 | £193,164 | £191,889 | £190,614 | £189,339 | £188,064 | £186,790 | £185,515 | £184,240 |
| 90%                 | £209,368 | £208,093 | £206,818 | £205,544 | £204,269 | £202,994 | £201,719 | £200,444 | £199,169 | £197,894 |
| 95%                 | £223,023 | £221,748 | £220,473 | £219,198 | £217,923 | £216,648 | £215,373 | £214,099 | £212,824 | £211,549 |
| 100%                | £236,677 | £235,402 | £234,127 | £232,853 | £231,578 | £230,303 | £229,028 | £227,753 | £226,478 | £225,203 |

Where the net benefit produces a non-negative outcome then it is cost effective for the NHS to adopt the indicator.

When this is the case, the cells are highlighted with a yellow background.

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**Appendix D: Net benefit analysis – Lower eligible population (0.29%)**

**Pilot of Psychoses CVD Risk Assessment**

|                          |         |   |         |
|--------------------------|---------|---|---------|
| Value per point achieved | £160.12 | Societal value of a QALY                            | £20,000 |
| Number of practices      | 7,962   |   |         |
| Mean practice population | 7,034   |   |         |
| Minimum threshold        | 45%     | <b>Baseline achievement</b>                         |         |
| Maximum threshold        | 80%     | Eligible population (mean % of practice population) | 0.29%   |
|                          |         | Baseline achievement (mean % of eligible patients)  | 12.4%   |
|                          |         | <b>Cost-effectiveness estimates</b>                 |         |
|                          |         | Incremental cost (£ per patient)                    | £1,357  |
|                          |         | Incremental effect (QALYs per patient)              | 0.226   |

|        |   |   |   |   |   |   |   |   |    |
|--------|---|---|---|---|---|---|---|---|----|
| Points | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|--------|---|---|---|---|---|---|---|---|----|

| National totals      |                      |        |        |        |        |        |         |         |         |                              |                 |
|----------------------|----------------------|--------|--------|--------|--------|--------|---------|---------|---------|------------------------------|-----------------|
| Expected Achievement | QOF payments (£000s) |        |        |        |        |        |         |         |         | Change in treatment cost (£) | Change in QALYs |
| 30%                  | £0                   | £0     | £0     | £0     | £0     | £0     | £0      | £0      | £0      | £38,789,578                  | 6460            |
| 35%                  | £0                   | £0     | £0     | £0     | £0     | £0     | £0      | £0      | £0      | £49,809,344                  | 8295            |
| 40%                  | £0                   | £0     | £0     | £0     | £0     | £0     | £0      | £0      | £0      | £60,829,110                  | 10131           |
| 45%                  | £0                   | £0     | £0     | £0     | £0     | £0     | £0      | £0      | £0      | £71,848,877                  | 11966           |
| 50%                  | £364                 | £546   | £729   | £911   | £1,093 | £1,275 | £1,457  | £1,639  | £1,821  | £82,868,643                  | 13801           |
| 55%                  | £729                 | £1,093 | £1,457 | £1,821 | £2,186 | £2,550 | £2,914  | £3,278  | £3,643  | £93,888,409                  | 15637           |
| 60%                  | £1,093               | £1,639 | £2,186 | £2,732 | £3,278 | £3,825 | £4,371  | £4,917  | £5,464  | £104,908,176                 | 17472           |
| 65%                  | £1,457               | £2,186 | £2,914 | £3,643 | £4,371 | £5,100 | £5,828  | £6,557  | £7,285  | £115,927,942                 | 19307           |
| 70%                  | £1,821               | £2,732 | £3,643 | £4,553 | £5,464 | £6,374 | £7,285  | £8,196  | £9,106  | £126,947,709                 | 21142           |
| 75%                  | £2,186               | £3,278 | £4,371 | £5,464 | £6,557 | £7,649 | £8,742  | £9,835  | £10,928 | £137,967,475                 | 22978           |
| 80%                  | £2,550               | £3,825 | £5,100 | £6,374 | £7,649 | £8,924 | £10,199 | £11,474 | £12,749 | £148,987,241                 | 24813           |
| 85%                  | £2,550               | £3,825 | £5,100 | £6,374 | £7,649 | £8,924 | £10,199 | £11,474 | £12,749 | £160,007,008                 | 26648           |
| 90%                  | £2,550               | £3,825 | £5,100 | £6,374 | £7,649 | £8,924 | £10,199 | £11,474 | £12,749 | £171,026,774                 | 28483           |
| 95%                  | £2,550               | £3,825 | £5,100 | £6,374 | £7,649 | £8,924 | £10,199 | £11,474 | £12,749 | £182,046,540                 | 30319           |
| 100%                 | £2,550               | £3,825 | £5,100 | £6,374 | £7,649 | £8,924 | £10,199 | £11,474 | £12,749 | £193,066,307                 | 32154           |

| Net Benefit (£000s) |          |          |          |          |          |          |          |          |          |          |
|---------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 30%                 | £90,414  | £90,414  | £90,414  | £90,414  | £90,414  | £90,414  | £90,414  | £90,414  | £90,414  | £90,414  |
| 35%                 | £116,099 | £116,099 | £116,099 | £116,099 | £116,099 | £116,099 | £116,099 | £116,099 | £116,099 | £116,099 |
| 40%                 | £141,785 | £141,785 | £141,785 | £141,785 | £141,785 | £141,785 | £141,785 | £141,785 | £141,785 | £141,785 |
| 45%                 | £167,471 | £167,471 | £167,471 | £167,471 | £167,471 | £167,471 | £167,471 | £167,471 | £167,471 | £167,471 |
| 50%                 | £192,792 | £192,610 | £192,428 | £192,246 | £192,064 | £191,882 | £191,700 | £191,517 | £191,335 | £191,153 |
| 55%                 | £218,114 | £217,750 | £217,385 | £217,021 | £216,657 | £216,293 | £215,928 | £215,564 | £215,200 | £214,836 |
| 60%                 | £243,435 | £242,889 | £242,343 | £241,796 | £241,250 | £240,703 | £240,157 | £239,611 | £239,064 | £238,518 |
| 65%                 | £268,757 | £268,028 | £267,300 | £266,571 | £265,843 | £265,114 | £264,386 | £263,657 | £262,929 | £262,200 |
| 70%                 | £294,078 | £293,168 | £292,257 | £291,346 | £290,436 | £289,525 | £288,614 | £287,704 | £286,793 | £285,883 |
| 75%                 | £319,400 | £318,307 | £317,214 | £316,121 | £315,029 | £313,936 | £312,843 | £311,750 | £310,658 | £309,565 |
| 80%                 | £344,721 | £343,446 | £342,171 | £340,897 | £339,622 | £338,347 | £337,072 | £335,797 | £334,522 | £333,247 |
| 85%                 | £370,407 | £369,132 | £367,857 | £366,582 | £365,307 | £364,033 | £362,758 | £361,483 | £360,208 | £358,933 |
| 90%                 | £396,093 | £394,818 | £393,543 | £392,268 | £390,993 | £389,718 | £388,443 | £387,168 | £385,893 | £384,618 |
| 95%                 | £421,778 | £420,503 | £419,229 | £417,954 | £416,679 | £415,404 | £414,129 | £412,854 | £411,579 | £410,304 |
| 100%                | £447,464 | £446,189 | £444,914 | £443,639 | £442,365 | £441,090 | £439,815 | £438,540 | £437,265 | £436,000 |

Where the net benefit produces a non-negative outcome then it is cost effective for the NHS to adopt the indicator.

When this is the case, the cells are highlighted with a yellow background.

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**Appendix E: Net benefit analysis – Worst case (50% increase in costs, 50% reduction in QALYs, lower eligible population)**

**Pilot of Psychoses CVD Risk Assessment**

|                          |         |   |         |
|--------------------------|---------|---|---------|
| Value per point achieved | £160.12 | Societal value of a QALY                            | £20,000 |
| Number of practices      | 7,962   |   |         |
| Mean practice population | 7,034   |   |         |
| Minimum threshold        | 45%     | <b>Baseline achievement</b>                         |         |
| Maximum threshold        | 80%     | Eligible population (mean % of practice population) | 0.29%   |
|                          |         | Baseline achievement (mean % of eligible patients)  | 12.4%   |
|                          |         | <b>Cost-effectiveness estimates</b>                 |         |
|                          |         | Incremental cost (£ per patient)                    | £2,036  |
|                          |         | Incremental effect (QALYs per patient)              | 0.113   |

|               |   |   |   |   |   |   |   |   |    |
|---------------|---|---|---|---|---|---|---|---|----|
| <b>Points</b> | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---------------|---|---|---|---|---|---|---|---|----|

| National totals      |                      |        |        |        |        |        |         |         |         |         |                              |                 |
|----------------------|----------------------|--------|--------|--------|--------|--------|---------|---------|---------|---------|------------------------------|-----------------|
| Expected Achievement | QOF payments (£000s) |        |        |        |        |        |         |         |         |         | Change in treatment cost (£) | Change in QALYs |
| 30%                  | £0                   | £0     | £0     | £0     | £0     | £0     | £0      | £0      | £0      | £0      | £58,184,366                  | 3230            |
| 35%                  | £0                   | £0     | £0     | £0     | £0     | £0     | £0      | £0      | £0      | £0      | £74,714,016                  | 4148            |
| 40%                  | £0                   | £0     | £0     | £0     | £0     | £0     | £0      | £0      | £0      | £0      | £91,243,666                  | 5065            |
| 45%                  | £0                   | £0     | £0     | £0     | £0     | £0     | £0      | £0      | £0      | £0      | £107,773,315                 | 5983            |
| 50%                  | £364                 | £546   | £729   | £911   | £1,093 | £1,275 | £1,457  | £1,639  | £1,821  | £1,821  | £124,302,965                 | 6901            |
| 55%                  | £729                 | £1,093 | £1,457 | £1,821 | £2,186 | £2,550 | £2,914  | £3,278  | £3,643  | £3,643  | £140,832,614                 | 7818            |
| 60%                  | £1,093               | £1,639 | £2,186 | £2,732 | £3,278 | £3,825 | £4,371  | £4,917  | £5,464  | £5,464  | £157,362,264                 | 8736            |
| 65%                  | £1,457               | £2,186 | £2,914 | £3,643 | £4,371 | £5,100 | £5,828  | £6,557  | £7,285  | £7,285  | £173,891,913                 | 9654            |
| 70%                  | £1,821               | £2,732 | £3,643 | £4,553 | £5,464 | £6,374 | £7,285  | £8,196  | £9,106  | £9,106  | £190,421,563                 | 10571           |
| 75%                  | £2,186               | £3,278 | £4,371 | £5,464 | £6,557 | £7,649 | £8,742  | £9,835  | £10,928 | £10,928 | £206,951,212                 | 11489           |
| 80%                  | £2,550               | £3,825 | £5,100 | £6,374 | £7,649 | £8,924 | £10,199 | £11,474 | £12,749 | £12,749 | £223,480,862                 | 12406           |
| 85%                  | £2,550               | £3,825 | £5,100 | £6,374 | £7,649 | £8,924 | £10,199 | £11,474 | £12,749 | £12,749 | £240,010,512                 | 13324           |
| 90%                  | £2,550               | £3,825 | £5,100 | £6,374 | £7,649 | £8,924 | £10,199 | £11,474 | £12,749 | £12,749 | £256,540,161                 | 14242           |
| 95%                  | £2,550               | £3,825 | £5,100 | £6,374 | £7,649 | £8,924 | £10,199 | £11,474 | £12,749 | £12,749 | £273,069,811                 | 15159           |
| 100%                 | £2,550               | £3,825 | £5,100 | £6,374 | £7,649 | £8,924 | £10,199 | £11,474 | £12,749 | £12,749 | £289,599,460                 | 16077           |

| Net Benefit (£000s) |         |         |         |         |         |         |         |         |         |         |         |
|---------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 30%                 | £6,417  | £6,417  | £6,417  | £6,417  | £6,417  | £6,417  | £6,417  | £6,417  | £6,417  | £6,417  | £6,417  |
| 35%                 | £8,240  | £8,240  | £8,240  | £8,240  | £8,240  | £8,240  | £8,240  | £8,240  | £8,240  | £8,240  | £8,240  |
| 40%                 | £10,063 | £10,063 | £10,063 | £10,063 | £10,063 | £10,063 | £10,063 | £10,063 | £10,063 | £10,063 | £10,063 |
| 45%                 | £11,887 | £11,887 | £11,887 | £11,887 | £11,887 | £11,887 | £11,887 | £11,887 | £11,887 | £11,887 | £11,887 |
| 50%                 | £13,345 | £13,163 | £12,981 | £12,799 | £12,617 | £12,435 | £12,253 | £12,071 | £11,888 | £11,888 | £11,888 |
| 55%                 | £14,804 | £14,440 | £14,076 | £13,712 | £13,347 | £12,983 | £12,619 | £12,255 | £11,890 | £11,890 | £11,890 |
| 60%                 | £16,263 | £15,717 | £15,170 | £14,624 | £14,078 | £13,531 | £12,985 | £12,438 | £11,892 | £11,892 | £11,892 |
| 65%                 | £17,722 | £16,993 | £16,265 | £15,536 | £14,808 | £14,079 | £13,351 | £12,622 | £11,894 | £11,894 | £11,894 |
| 70%                 | £19,181 | £18,270 | £17,360 | £16,449 | £15,538 | £14,628 | £13,717 | £12,806 | £11,896 | £11,896 | £11,896 |
| 75%                 | £20,640 | £19,547 | £18,454 | £17,361 | £16,269 | £15,176 | £14,083 | £12,990 | £11,898 | £11,898 | £11,898 |
| 80%                 | £22,098 | £20,824 | £19,549 | £18,274 | £16,999 | £15,724 | £14,449 | £13,174 | £11,899 | £11,899 | £11,899 |
| 85%                 | £23,922 | £22,647 | £21,372 | £20,097 | £18,822 | £17,547 | £16,272 | £14,997 | £13,723 | £13,723 | £13,723 |
| 90%                 | £25,745 | £24,470 | £23,195 | £21,920 | £20,645 | £19,370 | £18,095 | £16,821 | £15,546 | £15,546 | £15,546 |
| 95%                 | £27,568 | £26,293 | £25,018 | £23,743 | £22,468 | £21,193 | £19,918 | £18,644 | £17,369 | £17,369 | £17,369 |
| 100%                | £29,391 | £28,116 | £26,841 | £25,566 | £24,291 | £23,016 | £21,742 | £20,467 | £19,192 | £19,192 | £19,192 |

Where the net benefit produces a non-negative outcome then it is cost effective for the NHS to adopt the indicator.

When this is the case, the cells are highlighted with a yellow background.