UNIVERSITY OF BIRMINGHAM AND YORK HEALTH ECONOMICS CONSORTIUM

(National Collaborating Centre for Indicator Development)

Health economic report on piloted indicators

Pilot QOF indicator: Atrial Fibrillation (AF)

The percentage of patients registered at the practice aged 65 years and over who have been diagnosed with one or more of the following conditions: hypertension, diabetes, CKD, PAD, stroke/TIA, COPD or RA who have had a pulse rhythm assessment in the last 12 months.

Potential output: Recommendations for NICE Menu

Contents

Introduction and economic rationale for the indicator

This briefing paper presents economic analysis of the following potential indicator from pilot 11 of the NICE Quality and Outcomes Framework (QOF) indicator development programme:

The percentage of patients registered at the practice aged 65 years and over who have been diagnosed with one or more of the following conditions: hypertension, diabetes, CKD, PAD, stroke/TIA, COPD or RA who have had a pulse rhythm assessment in the last 12 months.

The economic analysis is based on evidence of delivery costs and evidence of benefits expressed as quality-adjusted life years (QALYs). The delivery cost 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 Indicator Advisory Committee 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:

Net benefit = monetised benefit – delivery cost – QOF payment.

For this indicator, the net benefit analysis is applied with a lifetime horizon at baseline. The objective is to evaluate whether the proposed indicator represents a cost-effective use of NHS resources and whether the potential QOF points provide an incentive to deliver the indicator.

Atrial fibrillation case finding

There are no specific guidance recommendations or quality standards for atrial fibrillation (AF) case finding in the target groups suggested in the indicator. The idea of the indicator is, however, to promote case finding in order to detect AF in patients before the onset of symptoms and importantly to prevent stroke events in this population. Opportunistic screening was found to be clinically beneficial in a published Cochrane Review on AF case finding [1].

For the NICE Guideline for Atrial Fibrillation (CG180) [2] an economic model was developed to assess the choice of anticoagulant based upon stroke and bleed risk. The findings from this model were used to recommend that AF patients with a CHA_2DS_2VASc score of 2 or greater or men with a score of 1 or greater should be offered stroke prevention therapy taking bleeding risk into account. Patients with any of the conditions considered in this review except RA and COPD would, by default due to their condition, have a CHA_2DS_2VASc score of at least 1 and so almost all patients who are diagnosed with AF should be considered for stroke prevention therapy. Patients with COPD and/or RA may have one of the other conditions included in the indicator and so it is likely that the majority of the population in question would have a CHA_2DS_2VASc score of at least 1.

The findings from the economic model were used and modified to explore the cost effectiveness of the pulse rhythm assessment proposed by this indicator.

Summary of assumptions:

- The costs of the indicator arise from a short amount of GP time to conduct the pulse rhythm assessment.
- To take a conservative approach, there are no cost savings included in the assessment, although these will arise from a reduction in stroke events over time.
- QALY gains arise from a reduction in stroke events caused by patients with AF receiving anticoagulation therapy.

Assumptions on delivery cost of the indicator

The economic model developed for CG180 was constructed on the basis that all costs associated with anti-coagulation therapy including stroke risk assessment were included, as well as potential cost savings from avoided stroke events. For simplicity we have not included the net cost position once a patient has been diagnosed with AF but have instead used the cost of undertaking the rhythm pulse assessment for patients. In reality this will be a short amount of time, during which the GP could be completing other parts of an annual review that should take place for all patients covered by the indicator. We have assumed that it will take two minutes of a GP's time at a cost of £4 that would not otherwise have been incurred without the assessment [3].

No cost savings have been included in the assumption, so the cost-effectiveness results reflect a conservative approach.

Baseline costs:

- The baseline cost of delivering the intervention was estimated to be £4 per patient.
- These costs cover the cost of the rhythm pulse assessment in GP time.

Assumptions on the benefits of the indicator

The benefits of the indicator focused on QALY gains derived from the NICE economic model developed for the AF guideline. The model was constructed to estimate the cost-effectiveness of anticoagulation therapy compared to doing nothing, or providing anti-platelet or dual anti-platelet therapies, based upon the stroke and bleeding risk of patients [1]. The benefits of the indicator were, therefore, based upon a patient with an AF diagnosis being provided with a stroke risk reduction therapy following pulse rhythm assessment, which would not have been provided without the assessment. The guideline recommends that stroke reduction therapies should only be considered if an AF patient had a CHA_2DS_2VASc score of 2 or greater or were men with a score of 1 or greater.

To calculate the potential QALY gain from the indicator, an estimate was made of the potential QALY gain associated with moving onto stroke reduction therapy for the number of patients who would be diagnosed with AF and who would go on to have a risk score that suggested they would benefit from stroke reduction therapy.

The QALY results from the economic model are not easy to interpret, but suggest that for patients with CHA_2DS_2VASc score of 2 or greater the QALY gain from anticoagulation therapy compared to doing nothing ranged from 0.005 to 0.040 depending on bleed risk. For men with a score of 1 or greater QALY gains ranged from 0.004 to 0.006. At baseline it was assumed that, due to the presence of other conditions, 75% of patients diagnosed with AF would have a CHA_2DS_2VASc score of 2 or greater, 15% would be men with a risk score of 1 or greater, and 10% would have a risk score suggesting no need for stroke risk reduction therapy. Given patients with COPD and/or RA are more likely to have a score less than 1 and these patients may be more than 10% of the eligible population, threshold analysis explored what proportion of patients with a risk score of 0 would make the indicator cost-ineffective, assuming it was cost-effective at baseline.

The mid-points of the range of QALY gains was taken giving a baseline QALY gain per patient moving onto adequate anticoagulation of 0.017. This was calculated as follows: (0.0225x0.75)+(0.005x0.15) – 0.0225 being the midpoint between 0.005 and 0.040 and 0.005 being the midpoint between 0004 and 0.006. The total range of potential QALY gains from 0.004 to 0.040 per patient was explored in sensitivity analysis.

The percentage of patients found at review to have AF but who had not already been diagnosed could not be determined. Whilst estimates of undiagnosed AF are available, they are not for patients with the list of pre-existing conditions in the indicator who are at higher risk of AF and are more likely to have already been diagnosed. It was, therefore, assumed that 5% of all patients covered by the indicator would not already have been diagnosed with AF but would subsequently be diagnosed with AF through pulse rhythm assessment at their review. Sensitivity analysis was used to explore a range of 1% to 10%.

Baseline benefits:

- The baseline benefit of an annual review was 0.0008 QALYs.
- These benefits were based upon a QALY benefit of 0.017 from patients who move onto anticoagulation due to being diagnosed with AF and 5% of the target patient groups of the indicator having undiagnosed AF that is picked up by rhythm pulse assessment.

Assumptions on the eligible population

The eligible population for this indicator was taken from the eligible population summing across the pilot 11 practices. This provided the estimates of the eligible population used in the base case analysis for the indicator. This was that, of the registered at the practice aged 65 years, those who have been diagnosed with one or more of the following conditions: hypertension, diabetes, CKD, PAD, stroke/TIA, COPD or RA who have not been diagnosed with AF was 9.65%.

Baseline level of achievement

The baseline level of achievement was taken from the average baseline achievement from across the pilot 11 practices. This provided the following estimate of the baseline achievement for the indicator:

- The percentage registered at the practice aged 65 years and over who have been diagnosed with one or more of the following conditions: hypertension, diabetes, CKD, PAD, stroke/TIA, COPD or RA but who have not been diagnosed with AF, who have had a pulse rhythm assessment in the last 12 months is 48.1%.

Population

In the base case, the economic analysis was based on the total practice population registered with practices in England, that is, 7,674 practices with an average practice size of 7,450 [4].

Table 1: Practice information for UK countries, 2016

Country	Number of practices	Average list size
England	7,674	7,450
Scotland	981	5,736
Wales	454	7,021
Northern Ireland	349	5,582

QOF payments

Each QOF point is assumed to result in a payment of £171.20. This is the value per point in England during 2017/18 (source: NHS Employers).

Value of a QALY

The expected QALY gain from implementing these indicators 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 for a QALY gain of 0.0008 the value is £16 (0.0009 x £20,000)

QOF points

The economic analysis considers the cost-effectiveness of the proposed activity over a range of QOF points. In the base case analysis for this indicator, analysis was carried out using 12 points as a baseline. This was considered to reflect similar current QOF indicators, such as **AF006: Patients with AF whose stroke risk has been assessed using the CHA_2DS_2VASc score system**, which is worth 12 points.

Thresholds

Given the high rate of baseline achievement a threshold range of 50% to 90% was used for all the indicators.

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

Under the baseline assumptions of delivery cost (£4.00), benefit (0.0008 QALYs with a value of £20,000 per QALY) and eligible population (9.65%), then assuming all practices achieved the maximum threshold of 90% the total QOF payments with 12 points for the indicator would be £15.8 million with a net benefit of £7.0 million. Under these assumptions, the indicator is therefore highly cost effective, with QOF payments at the base case of 12 points justifiable on economic grounds.

At 12 points the QOF payment reflects an incentive payment of £2.14 per patient with AF and provided with anticoagulation therapy. The indicator remains justifiable on economic grounds provided the incentive payment is lower than £4.12 per patient with AF and provided with anticoagulation therapy.

As the indicator is cost-effective at the base case delivery cost and QALY gain, the cost-effectiveness would only increase if the potential cost savings from the indicator were included, the maximum QALY gain considered of 0.04 was applied or the percentage of patients identified as having AF was 10%. If the lower QALY gain considered for anticoagulation therapy (0.004) was used, the indicator would not be cost effective at £20,000 per QALY with a net cost of £16.7 million with 12 points and 90% achievement. If 1% of eligible patients were identified as having AF the indicator would also not be cost effective at £20,000 per QALY with a net cost of £18.7 million with 12 points and 90% achievement.

The indicator continues to be cost effective at the base case at 90% achievement up to 17 points, or at the base case of 12 points if:

- Delivery costs per patient are increased 75.5% to £7.02
- The QALY gain per patient is reduced by 22% to 0.0005
- The percentage of eligible patients who have RA or COPD and no other AF risk thus having a CHA2DS2-VASc score of 0 is no higher than 28.5%
- Patients identified as having AF are no lower than 4.0% of those assessed.

Discussion

The economic results are based on a delivery cost of the indicator that although low reflects the minimum time required to undertake a pulse rhythm assessment and ignores any cost savings from identification of AF and reduction in risk of stroke events.

The cost-effectiveness of the indicator is sensitive to the percentage of patients that will be identified as having AF and to the proportion of patients that will have RA or COPD and no other risk factors. If the percentage of eligible patients with undiagnosed AF is less than 4.0% the indicator will not be cost-effective. This is also the case if the percentage of patients with undiagnosed AF and RA or COPD with no other stroke risk factors is greater than 28.5%. No evidence was found in the literature as to what the actual percentages for these two populations may be.

Nevertheless, under the conservative baseline assumptions in this analysis there is economic evidence to offer the 12 points suggested for this indicator.

References

[1] National Institute for Health and Clinical Excellence. Atrial Fibrillation: The management of atrial fibrillation, 2014. Available from: https://www.nice.org.uk/guidance/cg180

[2] PSSRU. Unit Costs of Health and Social Care. 2016

[3] National Institute for Health and Clinical Excellence. Chronic kidney disease: early identification and management of chronic kidney disease in adults in primary and secondary care, 2014. Available from: https://www.nice.org.uk/guidance/cg182

[4] General practice trends in the UK. NHS Information Centre. Published 31 July 2016