UNIVERSITY OF BIRMINGHAM AND YORK HEALTH ECONOMICS CONSORTIUM

(National Collaborating Centre for Indicator Development)

Health economic report on piloted indicators

Pilot QOF indicator: Diabetes interventions

The percentage of patients newly diagnosed with non-diabetic hyperglycaemia in the preceding 12 months who have been referred to a Healthier You: NHS Diabetes Prevention Programme for intensive lifestyle advice

Potential output: Recommendations for NICE Menu

Contents

Introduction and economic rationale for the indicators.....3

Interventions in non-diabetic hyperglycemia 4

Assumptions on delivery costs of indicator 4

Assumptions on the benefits of the indicator 5

Assumptions on the eligible population 6

Baseline level of achievement 7

Population 7

QOF payments 7

Value of a QALY 7

QOF points 8

Thresholds 8

Results (assuming a value per QALY of £20,000) 9

Discussion 9

References.....10

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 newly diagnosed with non-diabetic hyperglycaemia in the preceding 12 months who have been referred to a Healthier You: NHS Diabetes Prevention Programme for intensive lifestyle advice

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.

Interventions in non-Diabetic Hyperglycemia (nDH)

The NICE Public Health Guideline Type 2 Diabetes: prevention in people at high risk (PH38) [1] recommends that people at high risk of diabetes should be given a lifestyle intervention to lower their risk. The recommendation was based upon an economic model produced for PH38 to explore the cost-effectiveness of a screening programme to identify people with impaired glucose regulation (IGR) followed by an intensive intervention programme (similar to the NHS Diabetes Prevention Programme) to reduce the risk of diabetes in those with IGR. The definitions in the model for high risk people focus on those with IGR rather than for people with nDH. To allow analysis of the indicator we have assumed the results from the model for people with IGR can be considered transferable to people with nDH.

Summary of assumptions:

- People at risk of diabetes due to nDH are assumed to have the same costs and benefits from intensive lifestyle intervention as people with IGR.
- Lifetime costs relating to the indicator arise from the delivery cost of the intervention and treatment for diabetes. These costs are offset by reductions in diabetes related conditions, particularly cardiovascular disease (CVD).
- QALY gains arise from the reduction in diabetes related conditions due to the prevention of diabetes through an intensive lifestyle intervention.

Assumptions on delivery cost of the indicator

The economic model developed for PH38 considered the costs of identification of people at high risk of diabetes (those with IGR), intervention costs for a diabetes prevention programme, diabetes medication costs and costs of CVD events associated with having diabetes. The lifetime costs of identification and intervention for diabetes varied by the HbA1c levels that would be considered before a diabetes prevention intervention would be offered.

The NICE recommendation in PH38 is that intensive intervention should only be offered to those with HbA1c>=6.0% and so the costs associated with intervention at this level were chosen. This lifetime cost of identification and intervention was £90 per patient.

The indicator assumes people already have nDH and are, therefore considered at high risk of diabetes and suitable for a diabetes prevention intervention. Therefore the costs of testing to identify those eligible for intervention included in the model are not required to be included in the assessment of the costs of the indicator. However,, isolating the costs of identification from the PH38 model results is not possible, so the £90 per patient cost estimate can be considered to be an overestimate of the true per cost. Our premise was that if the indicator was not cost-effective at £90 per patient, threshold analysis would be used to explore the cost at which the indicator would be cost-effective.

Baseline costs:

- The baseline lifetime cost of an intensive lifestyle intervention in peopel with nDH was assumed to be £90 per patient.
- This cost assumes that the lifetime cost (and cost savings) of interventions to prevent diabetes are equivalent for nDH as for IGR.
- The cost is likely to be an overestimate of the true cost per patient as it includes costs of identification for IGR that are not required for people already diagnosed with nDH.

Assumptions on the benefits of the indicator

The benefits of the indicator focused on QALY gains which were also derived from the NICE economic model developed for PH38 [1]. The economic model found that intervention in patients with IGR and HbA1c>-6.0% resulted in a lifetime QALY gain of 0.0128 per person compared to no identification and intervention.

It is noted that this is the lowest QALY gain for the range of HbA1c levels considered for intervention in the model. The highest gain was 0.0392. Again, our premise was that if the indicator was not cost-effective at 0.0128 QALYs per person threshold analysis would be used to identify the QALY gain that would result in the indicator being cost-effective.

The economic model considered both identification and intervention (rather the just intervention) so the QALY benefit can be viewed as conservative. This is because the QALY benefit estimated from the model is split between those at high risk receiving an intervention and those not at high risk. All of the patients considered in the indicator would be high risk and so would benefit from the intervention.

Baseline benefits:

- The baseline lifetime QALY gain from an intensive lifestyle intervention in patients with nDH was assumed to be 0.0128 per patient.
- This QALY benefit assumes that the lifetime QALY gains of interventions to prevent diabetes are equivalent for nDH as for IGR.
- The gain is likely to be an underestimate of the true benefit per patient as it is split between high risk and lower risk people, while the indicator only focuses on high risk people.

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 estimate of the eligible population used in the base case analysis for the indicator. The percentage of patients newly diagnosed with non-diabetic hyperglycaemia in the preceding 12 months was 2.41%.

Baseline level of achievement

The baseline level of achievement was taken from the average baseline achievement from across the pilot 11 practices. This showed that the percentage of patients newly diagnosed with non-diabetic hyperglycaemia in the preceding 12 months who have been referred to a Healthier You: NHS Diabetes Prevention Programme for intensive lifestyle advice was 0.0%.

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 7,171 [2].

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 0.0128 the value is £256 (0.0128 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 5 points as a baseline. This was considered to reflect similar current QOF indicators related to disease prevention, such as:

- AF006: Patients with AF whose stroke risk has been assessed using the CHA2DS2-VASc score system (worth 12 points).
- CVD-PP001: In those patients with a new diagnosis of hypertension aged 30 or over and who have not attained the age of 75, recorded between the preceding 1 April to 31 March (excluding those with pre-existing CHD diabetes, stroke and/or TIA), who have a recorded CVD risk assessment score (using an assessment tool agreed with NHS CB) of ≥20% in the preceding 12 months: the percentage who are currently treated with statins (worth 10 points).

The subgroup felt that 5 points was more appropriate in this case as a baseline because the workload mainly consisted of a referral to a lifestyle programme.

Thresholds

Given the low rate of baseline achievement a threshold range of 40% to 80% was used for the indicator.

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

Under the baseline assumptions of delivery cost (£90.00), benefit (0.0128 QALYs with a value of £20,000 per QALY) and eligible population (2.41%), then assuming all practices achieved the maximum threshold of 80% the total QOF payments with 5 points for the indicator would be £6.6 million with a net benefit of £176.4 million. Under these assumptions, the indicator is therefore highly cost-effective, with QOF payments at the base case of 5 points justifiable on economic grounds.

At 5 points the QOF payment reflects an incentive payment of £4.77 per patient diagnosed with non-diabetic hyperglycaemia in the preceding 12 months. The indicator remains justifiable on economic grounds provided the incentive payment is lower than £132.80 per patient diagnosed with non-diabetic hyperglycaemia in the preceding 12 months.

As the indicator is cost-effective at the base case delivery cost and QALY gain, the cost-effectiveness would only increase if the cost of testing was removed or a higher potential QALY gain was included.

The indicator continues to be cost effective at the base case at 80% achievement up to 139 points, or at the base case of 5 points if:

- Delivery costs per patient are increased by 187.8% to £259.04.
- The QALY gain per patient is reduced by 63% to 0.0048.

Discussion

Under the conservative baseline assumptions in this analysis there is economic evidence to offer the 5 points suggested for this indicator.

The economic results are based on delivery costs and QALY benefits derived from a NICE model for identification of people with IGR and lifestyle advice not for patients with nDH. Provided that findings from a model for IGR identification and advice are transferable to advice for people with nDH already identified, the findings for the indicator should hold. The model for IGR identification and advice dilutes the benefits of advice across people without IGR and includes the costs of testing for people without IGR. It is, therefore, reasonable to assume that advice given to people already identified with IGR will potentially only be more cost-effective. The only issue for the cost-effectiveness of the indicator is whether advice costs the same and is at least as effective for patients with nDH as for those with IGR.

References

[1] National Institute for Health and Clinical Excellence. Type 2 diabetes: prevention in people at high risk 2012. Available from: https://www.nice.org.uk/guidance/ph38

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