

Scottish Diabetic Retinopathy Screening Programme

Key Performance Indicators

2007

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| Version 1.5 | Reviewed by: | DRS Collaborative Executive |
| | Authorised by: | Dr K Swa Lead Clinician, DRS Collaborative |
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| 1.0 | Reviewed by DRS Collaborative Executive | Dr R Harvey Lead Clinician, DRS Collaborative | 7th September 2007 |
| 1.1 | Improved definition of KPI 14 | Dr R Harvey Lead Clinician, DRS Collaborative | 23rd April 2008 |
| 1.2 | Clarification of definitions in consultation with J Fountain, Siemens UK | Dr R Harvey Lead Clinician, DRS Collaborative | 27th May 2008 |
| 1.3 | Clarification of definition for KPI 7, 7A and 7B KPI 14 amended to report for most recent. Added extra age band 0 – 12 Internal QA report definition amended KPI 8 to include number of delivered episodes KPI 9 altered numbers to be displayed | Dr R Harvey Lead Clinician, DRS Collaborative | 17th April 2009 |
| 1.4 | Amendment of the Reporting Start Date definition to allow a valid value that is the same as the KPI Date, in consultation with Andrea Schultz, Siemens Germany | Dr R Harvey Lead Clinician, DRS Collaborative | 15th May 2009 |
| 1.5 | KPI 3 and 4 classification of ‘successful screening’ has Ophthalmology appointments now included in their denominator. | Dr K Swa, Lead clinician, DRS Collaborative | 11th Feb 2010 |

Introduction

Responsibility for Diabetic Retinopathy Screening and its organisation in Scotland is at Health Board level. However patients resident in one Health Board (Board of Residence) may for personal or organisational reasons have their screening provided by another Health Board (the Board of Treatment).

Definitions

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| <i>KPI date</i> | The date on which the data for the key performance indicators are extracted from the DRS database. |
| <i>Reference date</i> | The date against which the Key Performance Indicators are to be determined. Note this date may be the same as or after the <i>KPI date</i> and may therefore be in the future. This is a parameter entered by the user. The default value is the <i>KPI date</i> . |
| <i>Reporting Start Date</i> | This is a parameter entered by the user which is either the same as the <i>KPI date</i> or in the past and has a default value which is 12 months prior to the <i>Reference Date</i> |
| <i>Reporting Interval</i> | This is the number of days defined by the interval that starts on the <i>Reporting Start Date</i> and ends on the <i>Reference Date</i> . Note that the interval includes both dates. |
| <i>Reporting Period</i> | This is the period of time defined by the <i>Reporting Interval</i> . |
| <i>Board of Treatment</i> | This is the board of treatment as recorded in Soarian and is the Diabetic Retinopathy Screening service that actually provides DRS (call, recall, booking organisation of photography and reporting). |
| <i>DRS Organisational Unit</i> | This is the organisation as defined within Soarian against which users are assigned access rights. This can be at region or board level. |
| <i>Total Population</i> | This comprises all people within Soarian on the <i>KPI date</i> apart from those who are suspended for the one of the following reasons: <ul style="list-style-type: none"> • Deceased • Not diabetic • Patient Merge. |
| <i>Screening Population</i> | The <i>Total Population</i> not excluded from screening for one of the following reasons: <ul style="list-style-type: none"> • Total loss of vision • Terminal illness • Unfit for treatment (as a result of disability) • Informed choice to opt out • No Active CHI Record • Under Age. <p>Note that the screening population does include people who are suspended for reason of "Temporarily Unavailable".</p> |
| <i>Eligible Population</i> | The <i>Screening Population</i> not excluded from screening for the following reason: <ul style="list-style-type: none"> • Under the care of an ophthalmologist (for the purpose of treatment, surveillance or detection of diabetic retinopathy) <p>The eligible population will be analysed by <i>Board of Residence</i>, <i>Board of Treatment</i> or a combination of the two.</p> |

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| <i>Board of Residence</i> | Health Boards are responsible for the retinal screening of the <i>eligible population</i> resident within their Board Area. The Board of Residence of an individual patient is determined by the post code of their normal residence as recorded on the <i>KPI date</i> (not the board of affiliation of the registered GP practice) and is recorded in the Community Health Index. |
| <i>Screening outcome</i> | This data item is set at the end of every screening episode unless the episode ends in failure to attend Current Valid Values are: <ul style="list-style-type: none"> • Rescreen in 12 months • Rescreen in 6 months • Refer to Ophthalmology • Refer to Slit Lamp • Retain under ophthalmology review |
| <i>Unsuccessfully screened</i> | Unsuccessful completion of an episode of screening by, slit lamp or photography or ophthalmology is obtained when a patient has attended, an outcome has been recorded and a grade of R6 is achieved for at least one eye without a referable grade in the other eye. Note this does not include episodes that end in failure to attend (DNA). |
| <i>Successfully screened</i> | A successful completion of an episode of screening by, slit lamp or photography or ophthalmology is obtained when a patient has attended, an outcome has been recorded and the criteria for unsuccessful screening as defined above have not been satisfied |
| <i>Retinal Screening</i> | This is an examination of the retina by either retinal photography or slit lamp biomicroscopy. This does not include Ophthalmology examinations. |
| <i>Result Delivery Completion Date</i> | The date on which the result delivery task is completed. |
| <i>Days to written report</i> | For each episode for which the patient attended the number of working days from the date of the screening examination to the <i>Result Delivery Completion Date</i> . NB Working days exclude Saturdays and Sundays. |
| <i>Negative Result</i> | Any result from grading as a result of slit lamp or photographic episode where the <i>screening outcome</i> is re-screen in 12 months. |
| <i>Observable Result</i> | Any result from grading as a result of slit lamp or photographic episode where the <i>screening outcome</i> is re-screen in 6 months. |
| <i>Referable Result</i> | Any result from grading as a result of slit lamp or photographic episode where the <i>screening outcome</i> is refer to Ophthalmology. |
| <i>Episode end date</i> | The date on which a <i>Screening outcome</i> is available from a screening episode resulting in a result delivery task being placed on the task list. |
| <i>Days to Ophthalmology Examination</i> | The number of working days between the <i>Result Delivery Completion Date</i> for a screening episode with a <i>screening outcome</i> of Refer to Ophthalmology and the date of the subsequent Ophthalmology examination. |
| <i>Referral Target</i> | Number of days entered by the user. The default value shall be 90 days. |

Key Performance Indicators

The Key Performance Indicators should be reportable by:

1. The whole of Scotland
2. The Whole of Scotland by Health Board of Residence
3. The Whole of Scotland by Health Board of Treatment
4. Health Board (Board of Residence)
5. Health Board (Board of Residence) by Board of Treatment
6. Board of Treatment irrespective of Health Board (Board of Residence)
7. Board of Treatment by Health Board (Board of Residence)

Providing the user has been given access to the export then the ability to view the report data for a health board should be constrained by their access rights except for the "1. Whole of Scotland" report data. Items 2 and 3 will only be available to users with access rights to all health boards.

Key Performance Indicators identified with ** shall be optionally reported broken down by ethnic code or gender or age band or Deprivation Quintile. Reporting by ethnic code, gender and deprivation quintile shall be by the system values valid at the time that the export is run. The Age Bands to be used shall be as follows:

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| 0 - 11 | 45 – 54 |
| 12 – 14 | 55 – 64 |
| 15 – 24 | 65 – 74 |
| 25 – 34 | 75 – 84 |
| 35 – 44 | >= 85 |

The default for each Key Performance Indicator shall be to only provide the total numbers unless specifically requested.

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| <p>KPI 0 Summary Statistics**</p> | <p>Reporting as at the <i>KPI date</i>:</p> <p><i>Total Population</i> Total number of people within the <i>Total Population</i> who are temporarily suspended Total number of people within the <i>Total Population</i> who are permanently suspended Total number of people within the <i>Total Population</i> who are suspended for reason of "Temporarily Unavailable"</p> <p><i>Eligible Population</i></p> |
| <p>KPI 1 Screening invitation rate**</p> | <p>The proportion of people who have been sent at least one invitation for <i>retinal screening</i> (with or without a pre-booked appointment) within the <i>Reporting Period</i>.</p> <p>Reporting</p> <p><i>Reporting Start Date</i> <i>Reporting Interval</i> <i>Reference Date</i></p> <p>The number of people in the <i>Eligible Population</i> (EP) Number of people in the <i>Eligible Population</i> who have attended a <i>retinal screening</i> appointment without prior invitation) during the <i>Reporting Period</i> (API) Number who have been sent at least one invitation during the <i>Reporting Period</i> (INV) Percentage = $100 * INV / (EP - API)$</p> <p>Target 100%</p> |

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| <p>KPI 2</p> <p>Screening uptake rate**</p> | <p>The proportion of the <i>Eligible Population</i> who have attended at least once for <i>Retinal screening</i> within the <i>Reporting Period</i>.</p> <p>Reporting</p> <p><i>Reporting Start Date</i> <i>Reporting Interval</i> <i>Reference Date</i></p> <p>The number of people in the <i>Eligible Population</i> Number who have attended at least one retinal screening examination Percentage</p> |
| <p>KPI 3</p> <p>Annual successful screening rate**</p> | <p>The proportion of the <i>Eligible Population</i> who have been <i>Successfully Screened</i> by slit lamp or photography at least once within a period of 12 months prior to the <i>Reference date</i>.</p> <p>Reporting</p> <p>The number of people in the <i>Eligible Population</i> Number who have been <i>Successfully Screened</i> by slit lamp or photography at least once Percentage</p> <p>Target 80%</p> |
| <p>KPI 4</p> <p>Successful screening rate**</p> | <p>The proportion of the <i>Eligible Population</i> who have been <i>Successfully Screened</i> by slit lamp or photography at least once within the <i>Reporting Period</i>.</p> <p>Reporting</p> <p><i>Reporting Start Date</i> <i>Reporting Interval</i> <i>Reference Date</i></p> <p>The number of people in the <i>Eligible Population</i> Number who have been <i>Successfully Screened</i> by slit lamp or photography at least once Percentage</p> |
| <p>KPI 5</p> <p>Biennial successful screening rate**</p> | <p>The proportion of the <i>Eligible Population</i> who have been <i>Successfully Screened</i> by slit lamp or photography at least once within a period of 24 months prior to the <i>Reference date</i>.</p> <p>Reporting</p> <p>The number of people in the <i>Eligible Population</i> Number who have been successfully screened by slit lamp or photography at least once Percentage</p> |
| <p>KPI 6</p> <p>Annual patient technical recall rate**</p> | <p>The proportion of the <i>Eligible Population</i> who have been <i>Unsuccessfully Screened</i> at least once within a period of 12 months prior to the <i>Reference date</i>.</p> <p>Reporting</p> <p>The number of people in the <i>Eligible Population</i> Number who have been <i>Unsuccessfully Screened</i> at least once Percentage</p> |
| <p>KPI 7A</p> <p>Annual photographic technical failure rate</p> | <p>The number of photographic screening episodes within a period of 12 months prior to the <i>Reference date</i> which result in the patient being <i>Unsuccessfully Screened</i> as a proportion of the total number of photographic episodes for which a result is available on the result delivery task list over the same period.</p> |

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| | <p>Reporting</p> <p>Number of photographic screenings for which a result is available on the result delivery task list Number of unsuccessful photographic screening episodes Percentage</p> |
| KPI 7B Annual Slit lamp technical failure rate | <p>The number of slit lamp screening episodes within a period of 12 months prior to the <i>Reference date</i> which result in the patient being <i>Unsuccessfully Screened</i> as a proportion of the total number of slit lamp episodes for which a result is available on the result delivery task list over the same period.</p> <p>Reporting</p> <p>Number of slit lamp screenings for which a result is available on the result delivery task list Number of unsuccessful slit lamp screening episodes Percentage</p> |
| KPI 7 Annual Overall Technical Failure Rate | <p>The number of slit lamp and photographic screening episodes within a period of 12 months prior to the <i>Reference date</i> which result in the patient being <i>Unsuccessfully Screened</i> as a proportion of the total number of slit lamp and photographic episodes for which a result is available on the result delivery task list over the same period.</p> <p>Reporting</p> <p>Number of slit lamp screenings + number of photographic screenings (in each case for which a result is available on the result delivery task list) Number of unsuccessful slit lamp screening episodes + Number of unsuccessful photographic screening episodes Percentage</p> |
| KPI 8 Duration to written report | <p>For each photographic or slit lamp episode for which the patient attended within the <i>Reporting Period</i> the <i>Days to Written Report</i> for that episode.</p> <p>Reporting</p> <p><i>Reporting Start Date</i> <i>Reporting Interval</i> <i>Reference Date</i> Longest recorded number of <i>Days to Written Report</i> The average (arithmetic mean) of the number of <i>Days to Written Report</i> The median of the number of <i>Days to Written Report</i> The number of delivered episodes The total number of episodes</p> |
| KPI 9 Written report success rate. | <p>Analysis as for KPI 8</p> <p>Reporting</p> <p><i>Reporting Start Date</i> <i>Reporting Interval</i> <i>Reference Date</i> A: Number of Delivered Episodes which have both started and been delivered within the reporting period and which have been delivered within =< 20 working days from the examination date B: Number of Delivered Episodes which have both started and been delivered within the reporting period and which have been delivered in > 20 working days from the examination date C: Number of Undelivered Episodes which started within the reporting period and which have been waiting as of the KPI date for =< 20 working days since</p> |

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| | <p>the examination date</p> <p>D: Number of Undelivered Episodes which started within the reporting period and which have been waiting as of the KPI date for > 20 working days since the examination date</p> <p>E: The total number of photographic and slit lamp episodes which started within the reporting period (A+B+C+D)</p> <p>Percentage delivered within 20 working days to be defined in terms of these numbers as follows: $100 \times A/(A+B+D)$</p> |
| <p>KPI 10</p> <p>Twelve Month Recall result rate**</p> | <p>The proportion of screening episodes excluding ophthalmology examinations with an <i>Episode end date</i> within the <i>Reporting Period</i> that result in successful completion of screening and whose recorded result is a <i>Negative Result</i>.</p> <p>Reporting</p> <p><i>Reporting Start Date</i> <i>Reporting Interval</i> <i>Reference Date</i></p> <p>Number of successful screening episodes (excluding Ophthalmology Examinations) Number of screening episodes (excluding Ophthalmology Examinations), with a <i>Negative Result</i> Percentage</p> |
| <p>KPI 11</p> <p>Six Month Recall result rate**</p> | <p>The proportion of screening episodes excluding ophthalmology examinations with an <i>Episode end date</i> within the <i>Reporting Period</i> that result in successful completion of screening and whose recorded result is an <i>Observable Result</i>.</p> <p>Reporting</p> <p><i>Reporting Start Date</i> <i>Reporting Interval</i> <i>Reference Date</i></p> <p>Number of successful screening episodes (excluding Ophthalmology Examinations) Number of screening episodes (excluding Ophthalmology Examinations), with a <i>Observable Result</i> Percentage</p> |
| <p>KPI 12</p> <p>Six Month recall re-screen rate**</p> | <p>The proportion of the <i>Eligible Population</i> who have been <i>Successfully Screened</i> within a period of time ending 6 months prior to the <i>Reference Date</i> and commencing on the <i>Reporting Start Date</i> and whose latest recorded result within that time period is an <i>Observable Result</i> and for whom the next attended examination is within 6 months of that recorded result.</p> <p>Report</p> <p><i>Reporting Start Date</i> <i>Reporting Interval</i> <i>Reference Date</i></p> <p>Total number of people in the interval with last result <i>Observable</i> Number of people who commenced an examination within 6 months as defined above. Percentage</p> |
| <p>KPI 13</p> <p>Referable Result rate**</p> | <p>The proportion of screening episodes excluding ophthalmology examinations with an <i>Episode end date</i> within the <i>Reporting Period</i> that result in successful completion of screening and whose recorded result is a <i>Referable Result</i>.</p> <p>Reporting</p> <p><i>Reporting Start Date</i></p> |

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| | <p><i>Reporting Interval</i> <i>Reference Date</i> Number of successful screening episodes (excluding Ophthalmology Examinations) Number of screening episodes (excluding Ophthalmology Examinations, with a <i>Referable Result</i>) Percentage</p> |
| <p>KPI 14 Ophthalmology Report Interval**</p> | <p>For each person with any episode which has an outcome of Refer to Ophthalmology and for which the result has been delivered within a period of time ending 6 months prior to the <i>Reference Date</i> and commencing on the <i>Reporting Start Date</i> , for the most recent such episode the <i>Days to Ophthalmology Examination</i>.</p> <p>Reporting</p> <p><i>Reporting Start Date</i> <i>Reporting Interval</i> <i>Reference Date</i> The total number of patients with an outcome of Refer to Ophthalmology The number of these patients with a subsequent Ophthalmology examination Longest recorded <i>Days to Ophthalmology Examination</i> for the most recent qualifying episode The average (arithmetic mean) of the number of <i>Days to Ophthalmology Examination</i></p> |
| <p>KPI 15 Ophthalmology review target**</p> | <p>Proportion of the total number of patients whose most recent episode within a period of time ending 6 months prior to the <i>Reference Date</i> and commencing on the <i>Reporting Start Date</i> which has an outcome of Refer to Ophthalmology for whom the <i>Days to Ophthalmology Examination</i> is less than or equal to <i>Referral Target</i>.</p> <p>Reporting</p> <p><i>Reporting Start Date</i> <i>Reporting Interval</i> <i>Reference Date</i> <i>Referral Target</i> The total number of patients with an outcome of Refer to Ophthalmology The total number of these patients for whom the <i>Days to Ophthalmology Examination</i> value is less than or equal to <i>Referral Target</i> Percentage</p> |
| <p>KPI 16 Ophthalmology attendance rate**</p> | <p>Proportion of the <i>screening population</i> who have attended an Ophthalmology appointment within the <i>Reporting Period</i>.</p> <p>Reporting</p> <p><i>Reporting Start Date</i> <i>Reporting Interval</i> <i>Reference Date</i> The number of people who have attended at least one Ophthalmology Examination with a <i>Screening Outcome</i> which is one of “Re-screen in 12 months”, “Re-screen in 6 months” or “Retain under ophthalmology review”. The <i>screening population</i>. Percentage</p> |
| <p>KPI 17 Ophthalmology suspensions rate**</p> | <p>The proportion of the <i>screening population</i> who on the <i>KPI date</i> are temporarily suspended from screening for reason of “under the care of Ophthalmologist”.</p> <p>Reporting</p> <p>The number of people temporarily suspended from screening for reason of “under the care of Ophthalmologist”.</p> |

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| | The <i>screening population</i> . Percentage |
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The following Key Performance Indicators should be reportable for the whole of Scotland or for a *DRS Organisational Unit*. Users shall be able to generate reports for Organisational Units for which they have export data user access rights. Graders will be included in a report where they have graded at least one examination within the reporting period for the relevant Organisation Unit. Where a grader is included in a report, the report will include all of the graders relevant tasks on the QA task list irrespective of the organisational unit to which they relate.

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| KPI 18 Grader Internal QA | The number of sets of images that have been reviewed on the QA task list within a 12 month period of between 1 and 13 months before the <i>Reference date</i> for each grader who has been active within that period and works within the selected <i>DRS Organisational Unit</i> . Reporting <i>Reference date</i> Grader Id Date of last grading The number of sets of images placed on the QA task list within the period from that grader The number of sets of images reviewed on the QA task list within the period from that grader. |
| KPI 19 Internal QA summary | In relation to a 12 month period of between 1 and 13 months before the <i>Reference date</i> : <i>Reference date</i> Total number of graders active in this period who work within the selected <i>DRS Organisational Unit</i> Number of graders with 500 sets of images reviewed on QA task list Percentage of currently active graders with 500 sets of images reviewed. |
| KPI 20 QA False Negative Rate | The proportion of episodes that have been reviewed in the QA task list within a 12 month period of between 1 and 13 months before the <i>Reference date</i> for which the QA outcome is Refer to Ophthalmology. Reporting <i>Reference date</i> Grader Id The number of sets of images reviewed on the QA task list within the period The number of sets of images for which the QA outcome is Refer to Ophthalmology Percentage |
| KPI 21 QA False Image Quality | The proportion of episodes that have been reviewed in the QA task list within a 12 month period of between 1 and 13 months before the <i>Reference date</i> for which the QA outcome is Refer to Slit Lamp. Reporting <i>Reference date</i> Grader Id The number of sets of images reviewed on the QA task list within the period by grader The number of sets of images for which the QA outcome is Refer to Slit Lamp Percentage |