### Table 1. Summary of data collection arrangements and instruments

<table>
<thead>
<tr>
<th>Category of data</th>
<th>Method of collection</th>
<th>Timing of collection</th>
<th>Items and instruments</th>
</tr>
</thead>
</table>
| Characteristics of practices and sites                                           | Site visit, interview with nurses,          | Before baseline data collection from patients | Practice – Location, setting, number of GPs  
Nurses- Age, highest education qualification, salary band, full/ part time status, years with practice, years with prescribing qualification (or none), diabetes training, years of experience in diabetes care, whether initiate insulin treatment, whether treat other long term conditions |
| Characteristics of patients                                                      | Telephone interview with patient            | Baseline            | Socio economic - living arrangements i.e. alone /with others, type of accommodation, employment status, education, ethnicity                                                                                             |
| Clinical records by nurse                                                        | Baseline                                    | Clinical - date of birth, sex, when the patient was diagnosed with diabetes, diabetes related co-morbidities, length of time managed by nurse                                                                            |
| Patient reported outcomes                                                        | Telephone interview with patient            | Baseline, 3 months, 6 months | **Self-care** (primary outcome) was measured by the widely used Revised Summary of Diabetes Self-Care Activities (revised SDSCA) (Toolbert et al, 2000, Shrivastava et al 2013).  

The 11 items ask: the number of days during the previous seven that they have followed dietary (4 items) and exercise (2 items) guidelines, tested their blood sugar (2 items), undertaken foot care (2 items), and the number of cigarettes smoked each day (1 item). Variables were combined to derive Diet-General, Diet-Specific, Exercise, Foot Care and Smoking, and calculated for each patient as a mean score across recruitment, 3 months and 6 months.  

Additional items were added on taking medications to schedule, and whether their nurse recommended routine blood sugar testing.  

3 measures of **satisfaction**:  
- The 17 item Satisfaction with Information about Medicines Scale (SIMS) (Horne et al, 2001). Two summary indicators are calculated for ‘action and usage’ (items 1 to 9) and ‘potential problems’ (items 10 to 17), range 0 (none/ too little) to 100 (about right).  
- The 14 item Chronically ill patients Evaluate general Practice (CEP) questionnaire (validated for doctor-led care by Wensing et al 1998, and nurse-led care by Laurant et al 2008) comprises a global satisfaction measure (item 1), and 13 statements reflecting communication skills, knowledge and treatment, each scored 1 (poor) to 5 (excellent). A summary score was derived from the mean of items 2-12. (Questions 13 and 14 were excluded as not relevant.)  
- Appointment making and waiting time dimensions (7 items) of the Unidimensional Outpatients’ Opinion of Quality of Hospital Consultation Departments (UOOQHCD) (Gasquet et al., 2004), with wording adapted to relate to nurses, covered ease of making appointments, speed of access, and waiting time. Scoring is on a scale 1 (worst) to 5 (best) and an overall mean was computed.  

Clinical indicators:  
- **HBA1c**, in mmol/mol (indicator of glycaemic control)  
- **Body Mass Index**  

Nurse activities and processes of care:  
- Individual diary nurse completed for each patient  

Following each patient contact, nurses indicated, from a list in a diary template (developed by the researchers in previous work Courtenay et al., 2012), those activities in which they had been involved, including: whether the consultation was a face-to-face or by telephone; if, following a review of the patient’s medicines, decisions to recommend, amend, stop, or prescribe medicines for patients were made; whether certain actions had been taken (such provision of advice, discussion of medication with a doctor/ other health professional, doctor asked to sign prescription, a recommendation for over-the-counter medicines).  

Nurses were also asked to estimate (in minutes) the duration of each consultation.  

Observations of nurse consultations:  
- 2 x 2 hour observation periods at each site  

Structured observations of consultations using the work sampling instrument developed by Gardner et al. (2010). Observations of nurse activities were conducted at 5 minute intervals in 2 x 2 hour blocks randomly assigned during clinic times when nurses were scheduled to see patients with diabetes. A trained researcher identified...
and categorised the main activity being undertaken by the nurse at each observation point (direct patient care (physical assessment, history taking, information exchange), indirect care (documenting patient notes, discussion with colleague, data retrieval), service related (including research, professional development, meetings)).

<table>
<thead>
<tr>
<th>Resource implications and costs</th>
<th>Interviews with nurses</th>
<th>Baseline</th>
<th>Grade / banding of each of the nurses in the study. Bands range from 5/E to 8/I, with higher bands reflecting greater clinical expertise and managerial responsibility, and attracting higher salaries.</th>
</tr>
</thead>
</table>
| Individual diary nurse completed for each patient | Over six month period that patients were in the study | 5 items related to consultations with individual patients, were also examined for differences between the two types of nurse:  
- number consultations;  
- duration of consultations;  
- frequency with which nurses sought advice from a GP or other professionals regarding patients’ medications;  
- frequency with which nurses asked GPs to sign prescriptions;  
- frequency of medication reviews, changes and new prescribing. |
| Telephone interview with patient | 3 months, 6 months | Self-report use of health services for diabetes –related issues (other than those involving their diabetes nurse) in the previous 3 months including: visits to the GP surgery, phone calls to the GP and diabetes nurse specialist, visits to other nurses and health professionals and hospital outpatient clinics, Accident & Emergency visits, hospital admissions and number of inpatient days. |
Table 2. Characteristics of the sites and nurses

<table>
<thead>
<tr>
<th>Pair</th>
<th>Case study site</th>
<th>Number of patients recruited</th>
<th>Type of nurse</th>
<th>Number of GPs in practice</th>
<th>Setting</th>
<th>Location in England</th>
<th>Nurse age in years</th>
<th>Salary Band</th>
<th>Full or part time</th>
<th>Education highest</th>
<th>Specialist diabetes training</th>
<th>Insulin initiated by nurse</th>
<th>Years at GP practice</th>
<th>Years of experience in diabetes care</th>
<th>Years with prescribing qualification</th>
<th>Treat other long term conditions</th>
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<tr>
<td>1</td>
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<td>12</td>
<td>NP</td>
<td>9</td>
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<td>Midlands</td>
<td>57</td>
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<td>FT</td>
<td>Degree</td>
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<td>PT 34%</td>
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<td>London</td>
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Key: NP, Nurse Prescriber; NNP, Not a Nurse Prescriber; N/A data not available
Table 3. Background characteristics of patients*, comparison between service groups

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Nurse Prescriber</th>
<th>Non Prescribing Nurse</th>
<th>Chi-square value</th>
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<tr>
<td></td>
<td>Frequency</td>
<td>Percentage</td>
<td>Frequency</td>
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<td><strong>Sex:</strong></td>
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<td>Male</td>
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<td>66.4</td>
<td>45</td>
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<td><strong>Living Arrangements:</strong></td>
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<td>Live alone</td>
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<td>Live with children (without partner)</td>
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<td>3.1</td>
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<td>Live with partner (with children)</td>
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<td>Live with partner (without children)</td>
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<tr>
<td>Live with other relatives</td>
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<td>Live with others</td>
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<td><strong>In Paid Employment:</strong></td>
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<td>34</td>
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<tr>
<td><strong>Type of Accommodation:</strong></td>
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<td>Owner-occupied</td>
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<td>67.9</td>
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<tr>
<td>Privately rented</td>
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<td>9.2</td>
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<tr>
<td>Rented from local authority/ housing association</td>
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<td>19.1</td>
<td>10</td>
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<td>Other</td>
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<td>3.8</td>
<td>0</td>
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<td><strong>University education:</strong></td>
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<td>Yes</td>
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<td>19.1</td>
<td>13</td>
</tr>
<tr>
<td></td>
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<tr>
<td><strong>White / Caucasian ethnicity:</strong></td>
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<td>Yes</td>
<td>119</td>
<td>90.8</td>
<td>82</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>Mean (SD)</td>
<td>N</td>
</tr>
<tr>
<td>Age in years (at first interview)</td>
<td>131</td>
<td>64.22 (11.32)</td>
<td>83</td>
</tr>
<tr>
<td>Number of years (at recruitment) since diagnosis of diabetes</td>
<td>128</td>
<td>9.09 (5.91)</td>
<td>83</td>
</tr>
<tr>
<td>How long patient has been treated by nurse</td>
<td>127</td>
<td>5.23 (5.40)</td>
<td>74</td>
</tr>
<tr>
<td>Number of diabetes-related co-morbidities</td>
<td>129</td>
<td>1.12 (0.78)</td>
<td>83</td>
</tr>
</tbody>
</table>

*Data were collected from a total of 214 patients: 131 (61.2%) nurse prescriber sites; 83 (38.8%) in non-prescriber sites. There were 194 patients who supplied information at both 3 and 6 month follow-up, three with data at neither point, 16 with data at 3 months but not at 6 months of which 1 had died and was excluded, 1 with data at 6 months but not at 3 months. Where data were provided at one but not both follow up points, the available data were averaged to provide a value over the whole 6 month period.
Table 4. Clinical indicators: Comparison between service groups

<table>
<thead>
<tr>
<th>Test result</th>
<th>Nurse Prescriber</th>
<th>Non Prescribing Nurse</th>
<th>Unpaired t-test: p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean (SD)</td>
<td>N</td>
</tr>
<tr>
<td>HbA1c at recruitment to study (mmol/mol)</td>
<td>128</td>
<td>63.0 (12.6)</td>
<td>83</td>
</tr>
<tr>
<td>HbA1c change (end of project - at recruitment) (mmol/mol)</td>
<td>115</td>
<td>-2.1 (10.9)</td>
<td>Paired t-test: p=0.043</td>
</tr>
<tr>
<td>BMI at recruitment to study</td>
<td>115</td>
<td>33.0 (9.1)</td>
<td>79</td>
</tr>
<tr>
<td>BMI change (end of project - at recruitment)</td>
<td>67</td>
<td>-0.44 (1.45)</td>
<td>Paired t-test: p=0.015</td>
</tr>
</tbody>
</table>
**Table 5. Patient contact and medicines management activities of prescribing and non prescribing nurses**

<table>
<thead>
<tr>
<th></th>
<th>Nurse Prescriber</th>
<th>Non Prescribing nurse</th>
<th>Mann-Whitney U test: p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Median</td>
<td>Range</td>
</tr>
<tr>
<td>Number of face-to-face consultations</td>
<td>123</td>
<td>2</td>
<td>0 to 9</td>
</tr>
<tr>
<td>Number of telephone consultations</td>
<td>123</td>
<td>0</td>
<td>0 to 11</td>
</tr>
<tr>
<td>Duration of face-to-face consultation (minutes)</td>
<td>121</td>
<td>27.67</td>
<td>10 to 45</td>
</tr>
<tr>
<td>Duration of telephone consultation (minutes)</td>
<td>35</td>
<td>6.25</td>
<td>2 to 40</td>
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<tr>
<td>Number of times patient’s medication was reviewed</td>
<td>123</td>
<td>2</td>
<td>0 to 11</td>
</tr>
<tr>
<td>Number of times a change to patient’s medication was required</td>
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<td>1</td>
<td>0 to 6</td>
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<tr>
<td>Number of times existing medications had to be stopped or amended</td>
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<td>1</td>
<td>0 to 6</td>
</tr>
<tr>
<td>Number of times new medication was required</td>
<td>123</td>
<td>0</td>
<td>0 to 4</td>
</tr>
<tr>
<td>Number of times advice was given to patient about medicine</td>
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<td>1</td>
<td>0 to 4</td>
</tr>
<tr>
<td>Number of times a patient was recommended to buy an over-the-counter medicine</td>
<td>123</td>
<td>0</td>
<td>0 to 1</td>
</tr>
<tr>
<td>Number of times medicines were supplied or administered via PGD</td>
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<td>0 to 1</td>
</tr>
<tr>
<td>Total consultations (face-to-face and phone)</td>
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<td>329</td>
<td>2.67</td>
</tr>
<tr>
<td>Number of times patient’s medication discussed with doctor or colleague</td>
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<td>33</td>
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<tr>
<td>Number of times GP contacted verbally or written about medications to be prescribed</td>
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<td>Number of time prescription issued for GP to sign immediately / during consultation</td>
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<td>Number of times prescription issued for GP to sign later</td>
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<td>0</td>
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</table>
Figure 1. Mean number of times (in 5 minute windows during 2 x 2 hour observation) each CATEGORY of work activity seen as predominant, broken down by Nurse Prescriber or Non-Prescribing Nurse.