CRεDITSS

(Clinical Research Design, IT and Statistical Support)

Statistical Analysis Results

"Chronic Disease and Diabetes screening/management in Aboriginal Health Services"

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1. INTRODUCTION AND STUDY AIMS

1.1 Study question and design

This study aimed to assess the impact of a specified intervention on rates of chronic disease screening and management in NSW Aboriginal Community Controlled Health Services (ACCHSs).

The study design was a stepped wedge (multiple baseline) randomised trial, involving the sequential implementation of the intervention across seven ACCHS sites. Order of implementation was randomized across the sites. The study commenced in March 2013 and concluded in December 2014.

1.2 Outcomes

Outcomes of interest were health screens and specific tests/results related to chronic disease and diabetes. At monthly intervals throughout the study, the proportion of active[1] participants receiving a specific test or having a target result was recorded (see below). The hypothesis was that the intervention would increase the proportion of patients receiving important health screens or having biochemical results in a goal range.

Within four domains of disease screening/management, the following outcomes were recorded monthly throughout the study:

1. **Screening for Chronic Disease**. The proportion of <u>all active Aboriginal patients</u> with at least 1 visit in last 12 months (ie. attended the ACCHS at least 3 times in the last 2 years) in the ACCHS with an up-to-date Adult Aboriginal Health Assessment (Medicare Item 715) (recorded within the last 12 months).
    a) In patients aged 15-54 yrs
    b) In patients aged 55+ yrs
2. **Screening for Diabetes**. The proportion of <u>all active Aboriginal patients</u> with at least 1 visit in last 12 months with up-to-date diabetes screening tests (recorded within the last 12 months) of:
    a) Random blood glucose
    b) Fasting blood glucose
3. **Management of Diabetes.** The proportion of active <u>Aboriginal diabetes patients</u> with at least 1 visit in last 12 months with up-to-date recordings of:
    a) GP Management Plan (Medicare item 721)
    b) Completed minimum cycle of care (Medicare items 2517, 2521 or 2525)
4. **Control of Diabetes**: The proportion of active <u>Aboriginal diabetes patients</u> with HbA1c recorded in last 6 months where HbA1c results were in the goal range of <7%.

1.3 ACCHS sites and randomization schemes

Seven ACCHS sites participated in the study:

1. Screening and Management site 1
2. Screening and Management site 2
3. Screening and Management site 3

[1] An 'active patient' was defined as having visited the ACCHS at least 3 times in the last 2 years.

4. Screening and Management site 4
5. Screening site 5
6. Management site 5
7. Management site 6

Data for outcomes 1 and 2 (Screening) were provided by sites 1-5. Data for outcomes 3 and 4 (Diabetes Management/Control) were provided by sites 1-4 and 6-7.

For the Screening and Management outcomes, sites were randomised in pairs (see Tables 1.1 and 1.2 below). The two sites within a pair received the intervention at the same time.

Table 1.1. Sites pairs and dates of randomization – outcomes 1 and 2 (Screening)

Pair	Sites	Intervention commenced
Pair 1	Screening sites 1 and 2	4 September 2013
Pair 2	Screening sites 3 and 4	2 December 2013
Pair 3	Screening site 5	3 March 2014

Table 1.2. Sites pairs and dates of randomization – outcomes 3 and 4 (Diabetes Management/Control)

Pair	Sites	Intervention commenced
Pair 1	Management sites 1 and 2	4 September 2013
Pair 2	Management sites 3 and 4	2 December 2013
Pair 3	Management sites 5 and 6	25 February 2014

2. GENERAL STATISTICAL METHODOLOGY

Baseline characteristics of patients within the five ACCHS Screening sites were represented as proportions (Table 1.3).

2.1 Regression modelling

For Outcomes 1-4 (each formed as a proportion), the impact of the intervention on the proportion of interest over time was assessed using segmented logistic regression. This model estimates parameters representing: i) the proportion at baseline; ii) the linear trend (rate of change) in the proportion before the intervention; iii) the immediate change in the proportion at the time of intervention, and iv) the change in the linear trend in the proportion following intervention. For each outcome, within a site (or site pair) the model was parameterized as:

$$\log\left(\frac{p_t}{1-p_t}\right) = \beta_0 + \beta_1 time_t + \beta_2 intervention + \beta_3 time\ after\ intervention$$

where p_t is the proportion for the relevant outcome at month *t* after baseline; *time* is a continuous variable representing time in months from baseline; *intervention* is an indicator variable taking the value 0 before the intervention and 1 afterwards; and *time after intervention* is a continuous variable representing the number of months after intervention.

To assess the potential impact of the intervention, the key parameters of interest are:

- β_1, representing the linear trend/slope (positive or negative) in the log-odds of having the outcome pre-intervention
- β_3, which shows the change in the linear trend (slope) after intervention, and
- $\beta_1 + \beta_3$, representing the linear trend (positive or negative) in the log-odds of having the outcome post-intervention (a linear combination of the pre-intervention slope and the change in this slope)

Beta coefficients were exponentiated to derive the within-site odds ratios and are presented together with 95% confidence intervals and Wald p-values for tests of statistical significance (and declared significant at the 5% level).

We note that several models showed evidence of significant overdispersion, based on the ratio of the Pearson Chi-Square statistic to the residual degrees of freedom. To avoid false claims of significance from such models, resulting from under-estimated standard errors, the standard errors of parameter estimates were multiplied (rescaled) by the square root of (Pearson Chi-Square/df), where df is the degrees of freedom associated with the Chi-Square statistic. When this adjustment was performed, it is noted in the table title for the relevant model by the suffix "*adjusted for overdispersion*".

2.2 Accounting for site effects

Analyses treated data for different sites in the following ways:

1. Primary analyses were performed across all sites simultaneously, including a fixed effect for site in the model. Dummy variable coding was used to estimate the baseline proportion in each site, relative to the reference (Screening and Managements site 1). For this model the intervention effect is a weighted average of the effects within each centre.
2. Primary analyses were performed within each site pair, using outcome frequencies summed across both sites in the pair. Note that for screening outcomes, Screening site 5 had no matched site.
3. For outcomes 1-4, secondary analyses were also performed within each site individually, to reveal any site-specific trends.

2.3 Graphical representation

Time series plots were also produced to graphically depict changes in proportions pre- and post-intervention, both within site pairs (aggregate data) and for individual sites. Time series plots were not produced for data aggregated across all sites, since intervention times differed across the constituent sites, precluding interpretation of changes relative interventions.

2.4 Assessing association between screening rates and demographic characteristics

For outcomes 1 – 4 (see section 1.2), associations between age and sex with screening/management probabilities at final follow-up were assessed by calculating odds ratios and 95% confidence intervals for 2×2 contingency tables. Significance levels were assessed using Fisher's exact test. P-values < 0.05 were considered statistically significant. These tests were performed within each screening/management site individually, and also across all sites combined.

To assess potential association between diabetes prevalence and diabetes screening using fasting or random glucose measures, a simple linear regression was performed. Data from the five screening sites each contributed a single data point. The outcome (dependent variable) in the regression was recorded diabetes prevalence at final follow-up. The predictor (independent variable) was the proportion of participants being screened for diabetes at final follow-up.

All statistical analyses were programmed using SAS v9.4 (SAS Institute, Cary, North Carolina, USA) and Stata (Release 13. College Station, TX: StataCorp LP).

3. RESULTS

3.1 Baseline site characteristics

Table 3.1*. Baseline characteristics of active* Aboriginal patient population at least 15 years of age at each Screening site (Outcomes 1 and 2)*

	Screening Site				
	1	**2**	**3**	**4**	**5**
Month of baseline record	Mar 2013	Mar 2013	May 2013	May 2013	Aug 2013
Total active participants at baseline	1155	1461	1705	1083	1824
Active & visited last 12 months	1018	1415	1480	881	1584
Characteristics (visited last 12 months)					
Male (%)	41%	45%	42%	41%	40%
15-54 yrs (%)	83%	87%	83%	89%	81%
55+ yrs (%)	17%	13%	17%	11%	19%
Diabetes diagnosis (%)	18%	10%	18%	10%	18%
CVD diagnosis (%)	9%	5%	9%	3%	11%

* Active patient is defined as having attended the service at least 3 times in the last 2 years

3.2 Statistical results for Outcome 1: Screening for Chronic Disease using the Adult Aboriginal Health Assessment (Medicare Item 715)

Table 3.2. *Baseline rates of up-to-date (i.e. completed within the last 12 months) Aboriginal Health Assessments (Medciare Item 715) for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months for each Screening site*

Screening site	*Month of baseline record*	*% patients screened: 15-54 yrs*	*% patients screened: 55+ yrs*
1	Mar 2013	27.5	35.9
2	Mar 2013	45.2	72.5
3	May 2013	10.9	26.5
4	May 2013	35.6	31.0
5	Aug 2013	8.3	12.7

* Active patient is defined as having attended the service at least 3 times in the last 2 years

There was substantial between-site variation in rates of baseline screening using the Adult Aboriginal Health Assessment. The proportion of patients with an up-to-date screen ranged from 8.3% to 45.2% among patients aged 15-54 years, and 12.7% to 72.5% among patients aged 55+ years.

3.2.1 Analyses across all sites

Table 3.3. *Logistic regression results for Aboriginal Health Assessment (15-54 yrs), aggregated across all Screening sites for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months (Adjusted for overdispersion)*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.0131	0.9901	1.0365	0.2661
Change in time effect, after intervention	0.9985	0.9741	1.0235	0.9059
Effect of time, after intervention	1.0116	1.0019	1.0213	0.0190

* Active patient is defined as having attended the service at least 3 times in the last 2 years

Among patients aged 15-54 years, averaged across all Screening sites, use of the Adult Aboriginal Health Assessment remained constant both before and after the intervention. Following the intervention, there was a tendency for screening rates to increase slightly per month (p=0.019), although the effect was very small (OR=1.01 per month).

Table 3.4. *Logistic regression results for Aboriginal Health Assessment (55+ yrs), aggregated across all Screening sites for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months (Adjusted for overdispersion)*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.0053	0.9761	1.0353	0.7276
Change in time effect, after intervention	1.0097	0.9779	1.0425	0.5537
Effect of time, after intervention	1.0150	1.0022	1.0280	0.0219

* Active patient is defined as having attended the service at least 3 times in the last 2 years

Among patients aged 55+ years, averaged across all sites, use of the Adult Aboriginal Health Assessment before the intervention was increasing slightly (~1.01-fold increase per month), but not significantly (p=0.62). Following the intervention, there was a very small increase in the trend (change in OR~1.01 per month), yielding post-intervention screening rates that were tending to increase (OR=1.015 per month, p=0.02).

3.2.2 Analyses within site pairs

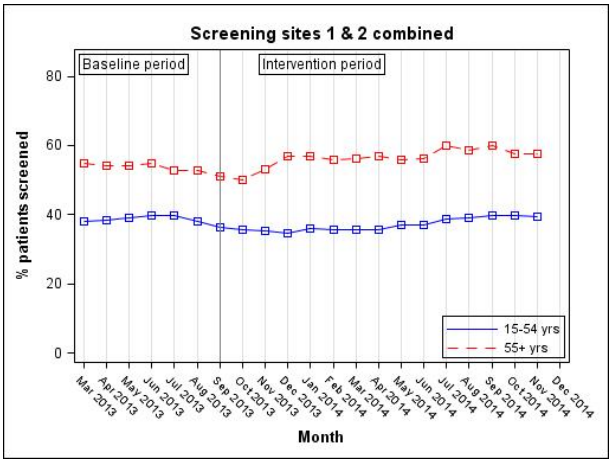

Figure 2.1. *Percentage of for active Aboriginal patients (i.e. at least 3 visits to ACCHS in last 2 years) at least 15 years of age and with at least 1 visit in the last 12 months receiving Aboriginal Health Assessment: Screening sites 1 & 2 combined*

Table 2.4. *Logistic regression results for Aboriginal Health Assessment (15-54 yrs), aggregated across Screening sites 1 and 2 for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	0.9923	0.9760	1.0089	0.3627
Change in time effect, after intervention	1.0255	1.0077	1.0437	0.0049
Effect of time, after intervention	1.0177	1.0117	1.0237	<.0001

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Across Screening sites 1 and 2, among patients aged 15-54 years, use of the Adult Aboriginal Health Assessment before the intervention was slightly, but non-significantly decreasing (OR=0.99 per month, p=0.36). Following the intervention, there was a significant increase in the trend (change in OR=1.03 per month, p=0.0049), yielding post-intervention screening rates that were significantly increasing (OR=1.02 per month, p<0.0001).

Table 2.5. *Logistic regression results for Aboriginal Health Assessment (55+ yrs), aggregated across Screening sites 1 and 2 for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	0.9787	0.9407	1.0182	0.2853
Change in time effect, after intervention	1.0402	0.9976	1.0845	0.0649
Effect of time, after intervention	1.0180	1.0044	1.0317	0.0095

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Across Screening sites 1 and 2, among patients aged 55+ years, use of the Adult Aboriginal Health Assessment before the intervention was slightly, but non-significantly decreasing (OR=0.98 per month, p=0.29). Following the intervention, there was an increase in the trend (change in OR=1.04 per month, p=0.065), yielding post-intervention screening rates that were significantly increasing (OR=1.02 per month, p=0.0095).

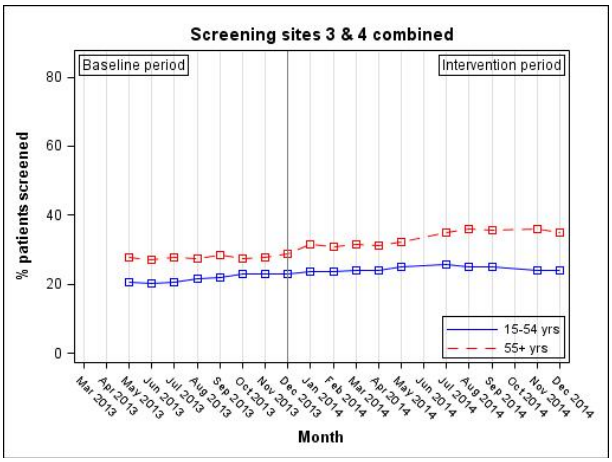

Figure 2.2. *Percentage of active Aboriginal patients (i.e. at least 3 visits to ACCHS in last 2 years) at least 15 years of age and with at least 1 visit in the last 12 months receiving Aboriginal Health Assessment: Screening sites 3 & 4 combined*

Table 2.6. *Logistic regression results for Aboriginal Health Assessment (15-54 yrs), aggregated across Screening sites 3 and 4 for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.0274	1.0107	1.0443	0.0012
Change in time effect, after intervention	0.9765	0.9586	0.9948	0.0120
Effect of time, after intervention	1.0033	0.9945	1.0121	0.4650

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Across Screening sites 3 and 4, among patients aged 15-54 years, use of the Adult Aboriginal Health Assessment was significantly increasing before the intervention (OR=1.03, p=0.0012). The intervention slightly reduced the trend, so the rate was relatively constant after the intervention (OR~1.00).

Table 2.7. *Logistic regression results for Aboriginal Health Assessment (55+ yrs), aggregated across Screening sites 3 and 4 for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.0063	0.9711	1.0427	0.7296
Change in time effect, after intervention	1.0170	0.9770	1.0586	0.4111
Effect of time, after intervention	1.0234	1.0046	1.0425	0.0145

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Across Screening sites 3 and 4, among patients aged 55+ years, use of the Adult Aboriginal Health Assessment was slightly increasing before the intervention. After the intervention, the screening rate was significantly increasing (OR=1.02, p=0.0145).

3.2.3 Analyses within individual sites

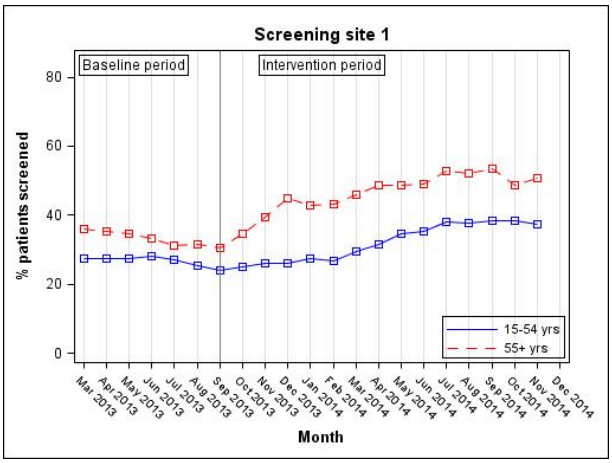

Figure 2.3. *Percentage of active Aboriginal patients (i.e. at least 3 visits to ACCHS in last 2 years) at least 15 years of age and with at least 1 visit in the last 12 months receiving Aboriginal Health Assessment: Screening site 1*

Table 2.8. *Logistic regression results for Aboriginal Health Assessment (15-54 yrs) at Screening site 1 for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months (adjusted for overdispersion)*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	0.9735	0.9477	0.9999	0.0493
Change in time effect, after intervention	1.0867	1.0564	1.1178	<.0001
Effect of time, after intervention	1.0578	1.0483	1.0675	<.0001

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Screening site 1, among patients aged 15-54 years, use of the Adult Aboriginal Health Assessment before the intervention was significantly decreasing (OR=0.97 per month, p=0.049). Following the intervention, there was an increase in the trend (change in OR~1.09 per month), yielding post-intervention screening rates that were significantly increasing (OR~1.06 per month, p<0.0001).

Table 2.9. *Logistic regression results for Aboriginal Health Assessment (55+ yrs) at Screening site 1 for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	0.9570	0.9003	1.0173	0.1586
Change in time effect, after intervention	1.0930	1.0250	1.1655	0.0067
Effect of time, after intervention	1.0460	1.0254	1.0670	<.0001

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Screening site 1, among patients aged 55+ years, use of the Adult Aboriginal Health Assessment before the intervention was slightly, but non-significantly decreasing (OR=0.96 per month, p=0.16). Following the intervention, there was a significant increase in the trend (change in OR=1.09 per month, p=0.0067), yielding post-intervention screening rates that were significantly increasing (OR~1.05 per month, p<0.0001).

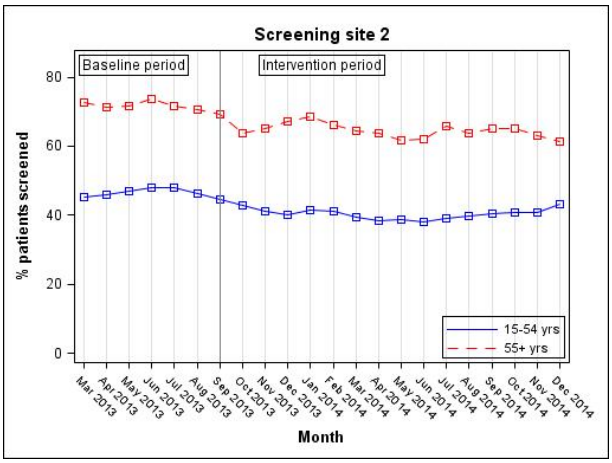

Figure 2.4. *Percentage of active Aboriginal patients (i.e. at least 3 visits to ACCHS in last 2 years) at least 15 years of age and with at least 1 visit in the last 12 months receiving Aboriginal Health Assessment: Screening site 2*

Table 2.10. *Logistic regression results for Aboriginal Health Assessment (15-54 yrs) at Screening site 2 for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	0.9996	0.9789	1.0206	0.9664
Change in time effect, after intervention	0.9993	0.9776	1.0215	0.9508
Effect of time, after intervention	0.9989	0.9922	1.0056	0.7402

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Table 2.11. *Logistic regression results for Aboriginal Health Assessment (55+ yrs) at Screening site 2 for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	0.9803	0.9231	1.0411	0.5170
Change in time effect, after intervention	1.0104	0.9492	1.0755	0.7460
Effect of time, after intervention	0.9905	0.9738	1.0075	0.2704

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Screening site 2, use of the Adult Aboriginal Health Assessment remained relatively constant both before and after the intervention, for both age groups. None of the trends or changes were significantly different from the expected value under the null (OR=1).

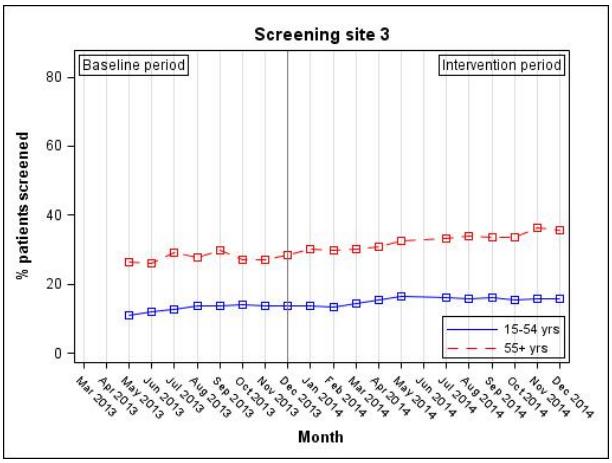

Figure 2.5. *Percentage of active Aboriginal patients (i.e. at least 3 visits to ACCHS in last 2 years) at least 15 years of age and with at least 1 visit in the last 12 months receiving Aboriginal Health Assessment: Screening site 3*

Table 2.12. *Logistic regression results for Aboriginal Health Assessment (15-54 yrs) at Screening site 3 for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.0335	1.0074	1.0604	0.0117
Change in time effect, after intervention	0.9814	0.9536	1.0099	0.1987
Effect of time, after intervention	1.0143	1.0012	1.0275	0.0321

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Screening site 3, among patients aged 15-54 years, use of the Adult Aboriginal Health Assessment before the intervention was significantly increasing (OR=1.03 per month, p=0.012). Following the intervention, there was a small, but non-significant decrease in the trend (change in OR=0.98 per month, p=0.2), yielding post-intervention screening rates that were still significantly increasing, but at a reduced rate (OR=1.01 per month, p=0.03).

Table 2.13. *Logistic regression results for Aboriginal Health Assessment (55+ yrs) at Screening site 3 for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.0100	0.9684	1.0534	0.6434
Change in time effect, after intervention	1.0156	0.9689	1.0646	0.5186
Effect of time, after intervention	1.0258	1.0044	1.0476	0.0180

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Screening site 3, among patients aged 55+ years, use of the Adult Aboriginal Health Assessment before the intervention was slightly, but non-significantly increasing (OR=1.01 per month, p=0.64). Following the intervention, there was a small, but non-significant increase in the trend (change in OR~1.02 per month, p=0.52), yielding post-intervention screening rates that were significantly increasing (OR~1.03 per month, p=0.018).

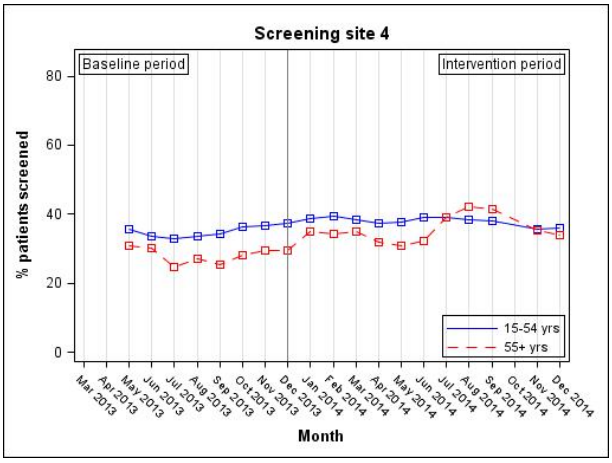

Figure 2.6. *Percentage of active Aboriginal patients (i.e. at least 3 visits to ACCHS in last 2 years) at least 15 years of age and with at least 1 visit in the last 12 months receiving Aboriginal Health Assessment: Screening site 4*

Table 2.14. *Logistic regression results for Aboriginal Health Assessment (15-54 yrs) at Screening site 4 for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.0211	0.9984	1.0444	0.0687
Change in time effect, after intervention	0.9701	0.9456	0.9953	0.0203
Effect of time, after intervention	0.9906	0.9786	1.0028	0.1306

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Screening site 4, among patients aged 15-54 years, use of the Adult Aboriginal Health Assessment before the intervention was significantly increasing (OR=1.02 per month, p=0.069). Following the intervention, there was a small, but non-significant decrease in the trend (change in OR=0.97 per month, p=0.02), yielding post-intervention screening rates that were relatively constant, though tending to slightly decrease (OR=0.99 per month, p=0.13).

Table 2.15. *Logistic regression results for Aboriginal Health Assessment (55+ yrs) at Screening site 4 for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	0.9972	0.9330	1.0658	0.9336
Change in time effect, after intervention	1.0159	0.9427	1.0948	0.6791
Effect of time, after intervention	1.0130	0.9791	1.0482	0.4567

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Screening site 4, among patients aged 55+ years, use of the Adult Aboriginal Health Assessment remained relatively constant both before and after the intervention, for both age groups. None of the trends or changes were significantly different from the expected value under the null (OR=1).

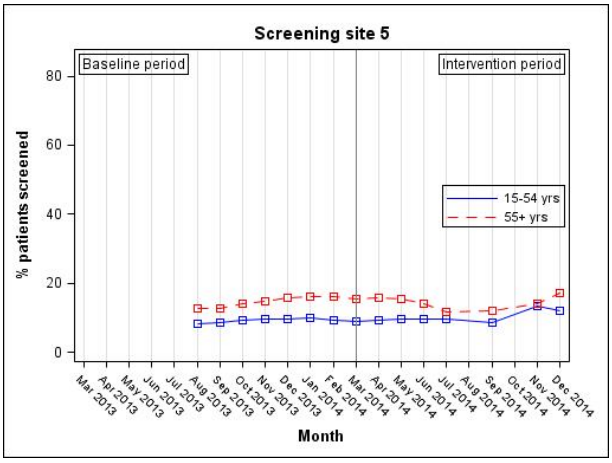

Figure 2.7. *Percentage of active Aboriginal patients (i.e. at least 3 visits to ACCHS in last 2 years) at least 15 years of age and with at least 1 visit in the last 12 months receiving Aboriginal Health Assessment: Screening site 5*

Table 2.16. *Logistic regression results for Aboriginal Health Assessment (15-54 yrs) at Screening site 5 for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.0152	0.9863	1.0449	0.3053
Change in time effect, after intervention	1.0283	0.9907	1.0672	0.1419
Effect of time, after intervention	1.0439	1.0197	1.0687	0.0003

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Screening site 5, among patients aged 15-54 years, use of the Adult Aboriginal Health Assessment before the intervention was slightly, but non-significantly increasing (OR~1.015 per month). Following the intervention, there was a small, but non-significant increase in the trend (change in OR~1.03 per month), yielding post-intervention screening rates that were significantly increasing (OR~1.04 per month, p=0.0003).

Table 2.17. *Logistic regression results for Aboriginal Health Assessment (55+ yrs) at Screening site 5 for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.0427	0.9929	1.0950	0.0941
Change in time effect, after intervention	0.9623	0.9027	1.0260	0.2399
Effect of time, after intervention	1.0034	0.9629	1.0457	0.8703

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Screening site 5, among patients aged 55+ years, use of the Adult Aboriginal Health Assessment before the intervention was slightly, but non-significantly increasing (OR=1.04 per month, p=0.094).

Following the intervention, there was a decrease in the trend (change in OR=0.96 per month, p=0.24), yielding post-intervention screening rates that were relatively constant (OR=1.00 per month, p=0.87).

3.3 Results for Outcome 2: Screening for Diabetes using blood glucose

Table 3.1. *Baseline rates of up-to-date (i.e. completed within the last 12 months) of glucose screening for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months for each Screening site*

Screening site	*Month of baseline record*	*Percent patients with fasting blood glucose*	*Percent patients with random blood glucose*
1	Mar 2013	23.0	75.7
2	Mar 2013	31.7	55.4
3	May 2013	8.1	47.2
4	May 2013	2.6	37.3
5	Aug 2013	7.1	62.5

*Active patient is defined as having attended the service at least 3 times in the last 2 years

There was substantial between-site variation in rates of screening for diabetes at baseline, ranging from 2.6% to 31.7% for fasting blood glucose, and 37.3% to 75.7% for random blood glucose.

3.3.1 Analyses across all sites

Table 3.2. *Logistic regression results for diabetes screening using fasting blood glucose aggregated across all 5 Screening sites for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months (adjusted for overdispersion)*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.0028	0.9792	1.0269	0.8204
Change in time effect, after intervention	0.9999	0.9749	1.0256	0.9955
Effect of time, after intervention	1.0027	0.9936	1.0119	0.5634

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Averaged across all Screening sites, diabetes screening using fasting blood glucose remained relatively constant both before and after the intervention. None of the trends or changes were significantly different from the expected value under the null (OR=1).

Table 3.3. *Logistic regression results for diabetes screening using random blood glucose aggregated across all 5 Screening sites for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months (adjusted for overdispersion)*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	0.9824	0.9642	1.0008	0.0614

Variable	Odds ratio	Lower 95% CI	Upper 95% CI	P-value
Change in time effect, after intervention	1.0321	1.0112	1.0535	0.0025
Effect of time, after intervention	1.0139	1.0052	1.0228	0.0018

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Averaged across all Screening sites, during the pre-intervention phase, there was a tendency for diabetes screening using random blood glucose to decrease, with each month associated with an approximate 0.98-fold decrease in the odds of screening (p=0.06). Post- intervention, there was a significant increase (OR=1.03, p=0.0025) in the trend, with rates of random glucose measurement then increasing significantly during post-intervention (approximate 1.01-fold increase in odds per month, p=0.0018).

3.3.2 Analyses within site pairs

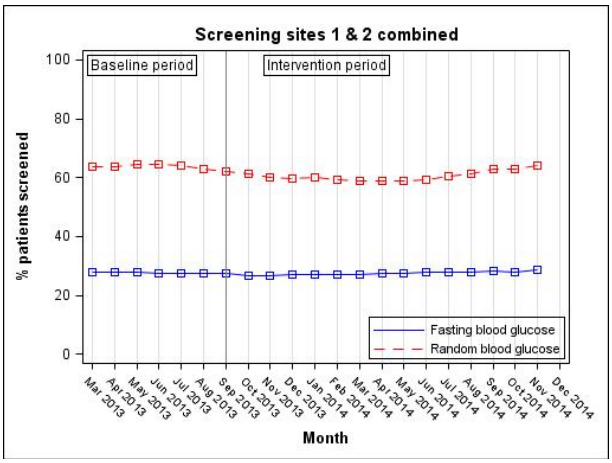

Figure 3.1. *Percentage of active Aboriginal patients (i.e. at least 3 visits to ACCHS in last 2 years) at least 15 years of age and with at least 1 visit in the last 12 months having glucose tested: Screening sites 1 & 2 combined*

Table 3.4. *Logistic regression results for diabetes screening using fasting blood glucose aggregated at Screening sites 1 & 2 combined for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months*

Variable	Odds ratio	Lower 95% CI	Upper 95% CI	P-value
Effect of time, before intervention	0.9926	0.9762	1.0093	0.3821
Change in time effect, after intervention	1.0136	0.9959	1.0317	0.1327
Effect of time, after intervention	1.0061	1.0003	1.0120	0.0395

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Across Screening sites 1 & 2, diabetes screening using fasting blood glucose remained relatively constant both before and after the intervention. After the intervention the screening rate was increasing significantly (p=0.04), although the effect was very small (OR=1.006 per month).

Table 3.5. *Logistic regression results for diabetes screening using random blood glucose aggregated at Screening sites 1 & 2 combined for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	0.9882	0.9689	1.0080	0.2410
Change in time effect, after intervention	1.0223	1.0012	1.0439	0.0386
Effect of time, after intervention	1.0103	1.0035	1.0172	0.0031

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Across Screening sites 1 & 2, during the pre-intervention phase, there was a slight, but non-significant decrease in diabetes screening using random blood glucose, with each month associated with an approximate 0.98-fold decrease in the odds of screening. Post- intervention, there was a significant increase in the trend (OR=1.02, p=0.039), with rates of random glucose measurement then slightly, but significantly increasing over time (approximate 1.01-fold increase in odds per month, p=0.003).

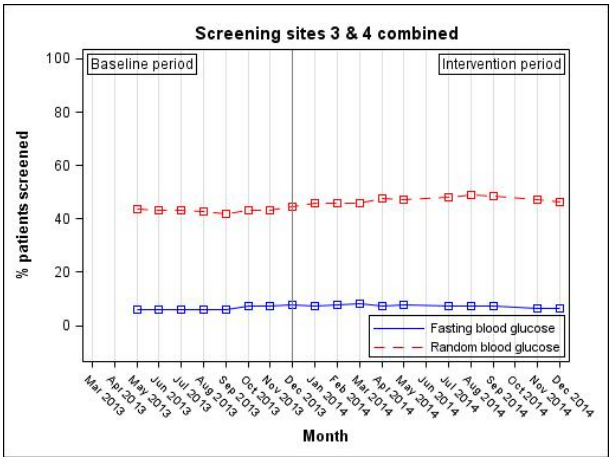

Figure 3.2. *Percentage of active Aboriginal patients (i.e. at least 3 visits to ACCHS in last 2 years) at least 15 years of age and with at least 1 visit in the last 12 months having glucose tested: Screening sites 3 & 4 combined*

Table 3.6. *Logistic regression results for diabetes screening using fasting blood glucose aggregated at Screening sites 3 & 4 combined for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.0459	1.0200	1.0724	0.0004
Change in time effect, after intervention	0.9366	0.9104	0.9635	<.0001
Effect of time, after intervention	0.9795	0.9666	0.9926	0.0023

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Across Screening sites 3 & 4, diabetes screening using fasting blood glucose was significantly increasing pre-intervention (OR~1.05 per month, p=0.0004). Following the intervention, there was a significant decrease in the trend (change in OR=0.94 per month, p<0.0001), yielding post-intervention screening rates that were significantly decreasing (OR=0.98 per month, p=0.0023).

Table 3.7. *Logistic regression results for diabetes screening using random blood glucose aggregated at Screening sites 3 & 4 combined for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.0025	0.9900	1.0151	0.6966
Change in time effect, after intervention	1.0036	0.9893	1.0180	0.6268
Effect of time, after intervention	1.0061	0.9991	1.0131	0.0876

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Across Screening sites 3 & 4, diabetes screening using random blood glucose remained relatively constant both before and after the intervention. None of the trends or changes were significantly different from the expected value under the null (OR=1).

3.3.3 Analyses within individual sites

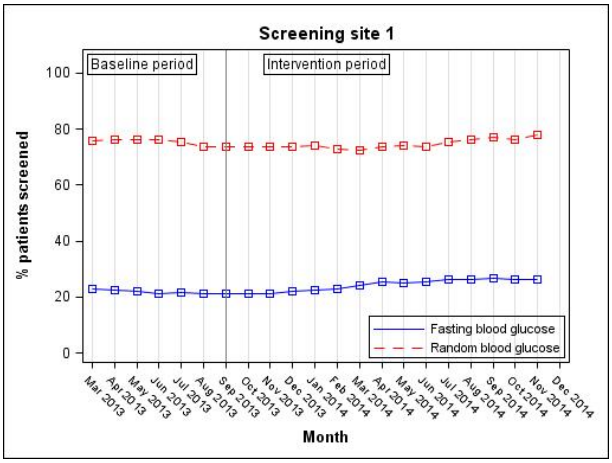

Figure 3.3. *Percentage of active Aboriginal patients (i.e. at least 3 visits to ACCHS in last 2 years) at least 15 years of age and with at least 1 visit in the last 12 months having glucose tested: Screening site 1*

Table 3.8. *Logistic regression results for diabetes screening using fasting blood glucose at Screening site1 for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	0.9828	0.9555	1.0108	0.2258
Change in time effect, after intervention	1.0429	1.0124	1.0743	0.0056
Effect of time, after intervention	1.0249	1.0152	1.0347	<.0001

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Screening site 1, during the pre-intervention phase, there was a small, but non-significant decrease in diabetes screening using fasting blood glucose, with each month associated with an approximate 0.98-fold decrease in the odds of screening (p=0.23). Post- intervention, there was a significant increase in the trend (OR=1.04, p=0.0056), with rates of random glucose measurement then significantly increasing over time (approximate 1.02-fold increase in odds per month, p<0.0001).

Table 3.9. *Logistic regression results for diabetes screening using random blood glucose at Screening site1 for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	0.9779	0.9609	0.9952	0.0126
Change in time effect, after intervention	1.0394	1.0203	1.0589	<.0001
Effect of time, after intervention	1.0165	1.0103	1.0227	<.0001

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Screening site 1, during the pre-intervention phase, there was a significant decrease in diabetes screening using random blood glucose, with each month associated with an approximate 0.98-fold decrease in the odds of screening (p=0.013). Post- intervention, there was a significant increase in the trend (OR=1.04, p<0.0001), with rates of random glucose measurement then significantly increasing over time (approximate 1.02-fold increase in odds per month, p<0.0001).

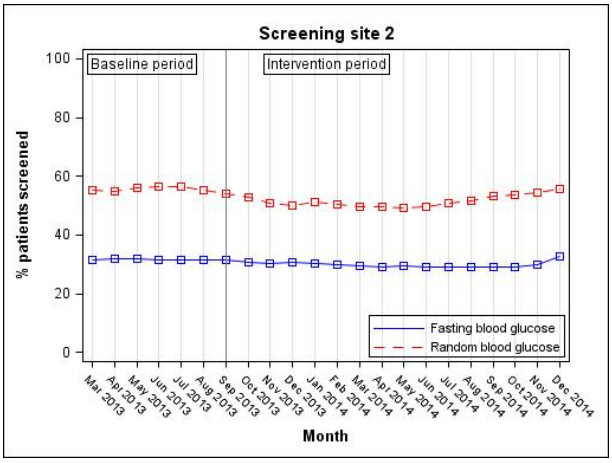

Figure 3.4. *Percentage of active Aboriginal patients (i.e. at least 3 visits to ACCHS in last 2 years) at least 15 years of age and with at least 1 visit in the last 12 months having glucose tested: Screening site 2*

Table 3.10. *Logistic regression results for diabetes screening using fasting blood glucose at Screening site 2 for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	0.9964	0.9758	1.0174	0.7333
Change in time effect, after intervention	1.0030	0.9812	1.0253	0.7873
Effect of time, after intervention	0.9994	0.9927	1.0061	0.8574

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Screening site 2, diabetes screening using fasting blood glucose remained relatively constant both before and after the intervention. None of the trends or changes were significantly different from the expected value under the null (OR=1).

Table 3.11. *Logistic regression results for diabetes screening using random blood glucose at Screening site 2 for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	0.9957	0.9736	1.0183	0.7074
Change in time effect, after intervention	1.0147	0.9911	1.0388	0.2257
Effect of time, after intervention	1.0103	1.0032	1.0174	0.0043

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Screening site 2, during the pre-intervention phase, diabetes screening using random blood glucose remained relatively constant, with each month associated with little change in the odds of screening (OR~1.00). Post- intervention, there was a small, but non-significant increase in the trend (OR~1.01, p=0.23), with rates of random glucose measurement then slightly, but significantly increasing over time (approximate 1.01-fold increase in odds per month, p=0.004).

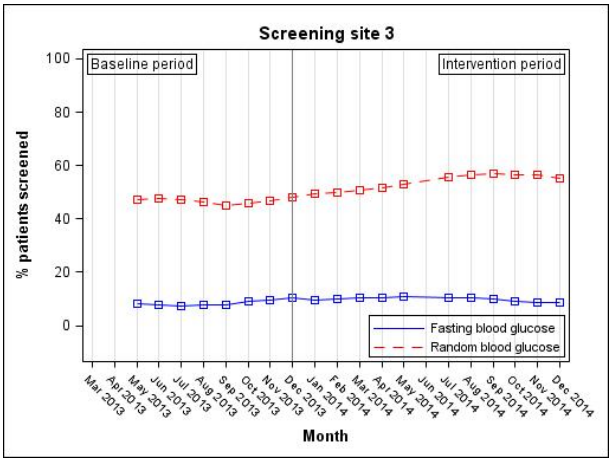

Figure 3.5. *Percentage of active Aboriginal patients (i.e. at least 3 visits to ACCHS in last 2 years) at least 15 years of age and with at least 1 visit in the last 12 months having glucose tested: Screening site 3*

Table 3.12. *Logistic regression results for diabetes screening using fasting blood glucose at Screening site 3 for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.0456	1.0166	1.0755	0.0019
Change in time effect, after intervention	0.9450	0.9157	0.9752	0.0004
Effect of time, after intervention	0.9881	0.9743	1.0021	0.0962

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Screening site 3, during the pre-intervention phase, diabetes screening using fasting blood glucose was significantly increasing (OR=1.05, p=0.0019). Post- intervention, there was a significant decrease in the trend (OR=0.94, p=0.0004), with rates of random glucose measurement then tending to decrease post-intervention (OR=0.99, p=0.096).

Table 3.13. *Logistic regression results for diabetes screening using random blood glucose at Screening site 3 for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*

Variable	Odds ratio	Lower 95% CI	Upper 95% CI	P-value
Effect of time, before intervention	0.9997	0.9841	1.0156	0.9731
Change in time effect, after intervention	1.0291	1.0109	1.0477	0.0016
Effect of time, after intervention	1.0288	1.0202	1.0376	<.0001

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Screening site 3, during the pre-intervention phase, diabetes screening using random blood glucose remained relatively constant, with each month associated with little change in the odds of screening (OR~1.00, p=0.87). Post- intervention, there was a significant increase in the trend (OR=1.03, p=0.0016), with rates of random glucose measurement significantly increasing post-intervention (approximate 1.03-fold increase in odds per month, p<0.0001).

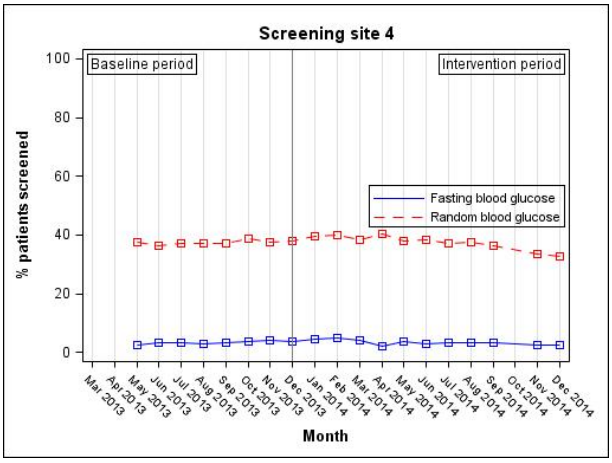

Figure 3.6. *Percentage of active Aboriginal patients (i.e. at least 3 visits to ACCHS in last 2 years) at least 15 years of age and with at least 1 visit in the last 12 months having glucose tested: Screening site 4*

Table 3.14. *Logistic regression results for diabetes screening using fasting blood glucose at Screening site 4 for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months*

Variable	Odds ratio	Lower 95% CI	Upper 95% CI	P-value
Effect of time, before intervention	1.0557	0.9978	1.1169	0.0595
Change in time effect, after intervention	0.8948	0.8387	0.9546	0.0008
Effect of time, after intervention	0.9446	0.9150	0.9752	0.0005

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Screening site 4, during the pre-intervention phase, diabetes screening using fasting blood glucose was tending to increase (OR=1.06, p=0.06). Post- intervention, there was a significant decrease in the trend (OR=0.89, p=0.0008), with rates of random glucose measurement then significantly decreasing post-intervention (OR=0.94, p=0.0005).

Table 3.15. *Logistic regression results for diabetes screening using random blood glucose at Screening site 4 for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.0090	0.9882	1.0303	0.4005
Change in time effect, after intervention	0.9642	0.9414	0.9875	0.0027
Effect of time, after intervention	0.9728	0.9617	0.9841	<.0001

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Screening site 4, during the pre-intervention phase, diabetes screening using random blood glucose was increasing slightly (OR=1.01, p=0.4). Post- intervention, there was a significant decrease in the trend (OR=0.96, p=0.0027), with rates of random glucose measurement then significantly decreasing post-intervention (OR=0.97, p<0.0001).

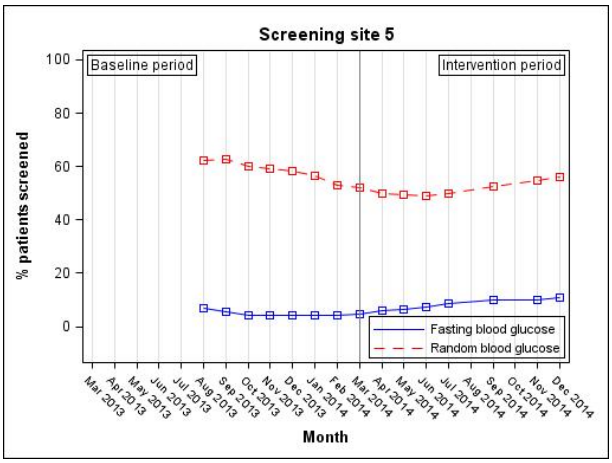

Figure 3.7. *Percentage of active Aboriginal patients (i.e. at least 3 visits to ACCHS in last 2 years) at least 15 years of age and with at least 1 visit in the last 12 months having glucose tested: Screening site 5*

Table 3.16. *Logistic regression results for diabetes screening using fasting blood glucose at Screening site 5 for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	0.9350	0.9029	0.9683	0.0002
Change in time effect, after intervention	1.1537	1.1067	1.2027	<.0001
Effect of time, after intervention	1.0787	1.0548	1.1033	<.0001

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Screening site 5, during the pre-intervention phase, diabetes screening using fasting blood glucose was significantly decreasing, with each month associated with a 0.94-fold decrease in the odds of

screening (p=0.0002). Post- intervention, there was a significant increase in the trend (OR=1.15, p<0.0001), with rates of random glucose measurement significantly increasing post-intervention (approximate 1.08-fold increase in odds per month, p<0.0001).

Table 3.17. *Logistic regression results for diabetes screening using random blood glucose at Screening site 5 for active* Aboriginal patients at least 15 years of age and with at least 1 visit in the last 12 months*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	0.9365	0.9223	0.9509	<.0001
Change in time effect, after intervention	1.1061	1.0843	1.1283	<.0001
Effect of time, after intervention	1.0358	1.0228	1.0491	<.0001

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Screening site 5, during the pre-intervention phase, diabetes screening using random blood glucose was significantly decreasing, with each month associated with a 0.94-fold decrease in the odds of screening (p<0.0001). Post- intervention, there was a significant increase in the trend (OR=1.11, p<0.0001), with rates of random glucose measurement tending to increase post-intervention (approximate 1.04-fold increase in odds per month, p<0.0001).

3.4 Results for Outcome 3: Diabetes Management

Table 4.1. *Baseline rates of active* Aboriginal patients at least 15 years of age, and with at least 1 visit in the last 12 months, for each Management site with up-to-date (i.e. completed within the last 12 months) 1) minimum cycle of care and 2) GP Management Plan*

Management site	*Month of baseline record*	*% patients receiving minimum cycle of care*	*% patients with GP management plan*
1	Mar 2013	2.8	49.4
2	Mar 2013	37.4	82.0
3	May 2013	4.5	34.0
4	May 2013	2.2	58.4
5	Sep 2013	0.8	31.3
6	Aug 2013	27.8	70.9

*Active patient is defined as having attended the service at least 3 times in the last 2 years

There was substantial between-site variation in rates of diabetes management at baseline, ranging from 0.8% to 37.4% for the minimum cycle of care, and 31.3% to 82.0% for a GP management plan.

3.4.1 Analyses across all sites

Table 4.2. *Logistic regression results for active* Aboriginal patients at least 15 years of age, and with at least 1 visit in the last 12 months, with up-do-date Minimum Cycle of Care (i.e. completed within last 12 months) across all 6 Management sites for (adjusted for overdispersion)*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	0.9651	0.9030	1.0314	0.2948
Change in time effect, after intervention	1.0592	0.9872	1.1364	0.1095
Effect of time, after intervention	1.0222	0.9986	1.0464	0.0657

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Averaged across all Management sites, the proportion of diabetes patients receiving the minimum cycle of diabetes care remained relatively constant both before and after the intervention. None of the trends or changes were significantly different from the expected value under the null (OR=1).

Table 4.3. *Logistic regression results for active* Aboriginal patients at least 15 years of age, and with at least 1 visit in the last 12 months, with a current GP Management Plan across all 6 Management sites*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.0207	0.9965	1.0455	0.0937
Change in time effect, after intervention	0.9833	0.9575	1.0097	0.2119
Effect of time, after intervention	1.0036	0.9927	1.0147	0.5164

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Averaged across all Management sites, the proportion of diabetes patients with a current GP management plan remained relatively constant both before and after the intervention. None of the trends or changes were significantly different from the expected value under the null (OR=1).

3.4.2 Analyses within site pairs

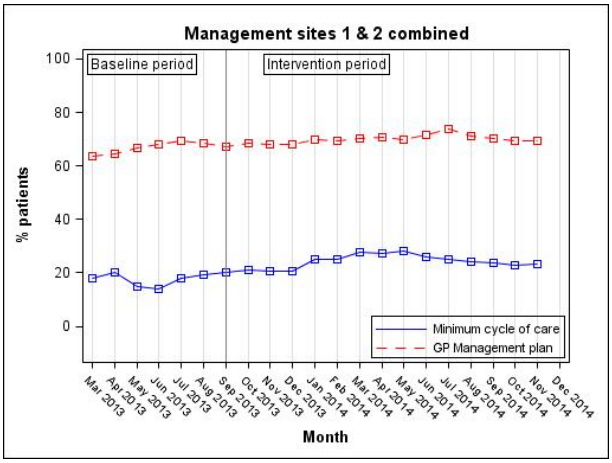

Figure 4.1. *Percentage of active* Aboriginal patients with diabetes at least 15 years of age, and with at least 1 visit in the last 12 months receiving diabetes management: Management sites 1 & 2 combined*

Table 4.4. *Logistic regression results for active* Aboriginal patients with diabetes at least 15 years of age, and with at least 1 visit in the last 12 months, with up-do-date Minimum Cycle of Care (i.e. completed within last 12 months) at Management sites 1 & 2 combined*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.0227	0.9689	1.0794	0.4154
Change in time effect, after intervention	0.9854	0.9313	1.0426	0.6094
Effect of time, after intervention	1.0078	0.9914	1.0244	0.3553

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Across Management sites 1 and 2, during the pre-intervention phase, the proportion of diabetes patients receiving the minimum cycle of diabetes care remained relatively constant both before and after the intervention. None of the trends or changes were significantly different from the expected value under the null (OR=1).

Table 4.5. *Logistic regression results for active* Aboriginal patients with diabetes at least 15 years of age, and with at least 1 visit in the last 12 months, with a current GP Management Plan at Management sites 1 and 2 combined*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.0351	0.9907	1.0816	0.1232
Change in time effect, after intervention	0.9735	0.9292	1.0198	0.2573
Effect of time, after intervention	1.0077	0.9923	1.0233	0.3282

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Across Management sites 1 and 2, during the pre-intervention phase, the proportion of diabetes patients with a current GP management plan remained relatively constant both before and after the intervention. None of the trends or changes were significantly different from the expected value under the null (OR=1).

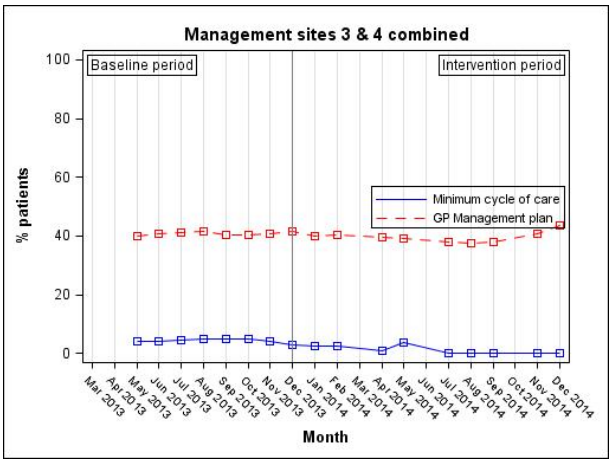

Figure 4.2. *Percentage of active* Aboriginal patients with diabetes at least 15 years of age, and with at least 1 visit in the last 12 months receiving diabetes management: Management sites 3 & 4 combined*

Table 4.6. *Logistic regression results for active* Aboriginal patients with diabetes at least 15 years of age, and with at least 1 visit in the last 12 months, with up-do-date Minimum Cycle of Care (i.e. completed within last 12 months) at Management sites 3 & 4 combined*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	0.9795	0.9053	1.0599	0.6074
Change in time effect, after intervention	1.0717	0.8612	1.3338	0.5347
Effect of time, after intervention	1.0498	0.8561	1.2874	0.6405

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Across Management sites 3 and 4, during the pre-intervention phase, the proportion of diabetes patients receiving the minimum cycle of diabetes care remained relatively constant both before and after the intervention. None of the trends or changes were significantly different from the expected value under the null (OR=1).

Table 4.7. *Logistic regression results for active* Aboriginal patients with diabetes at least 15 years of age, and with at least 1 visit in the last 12 months, with a current GP Management Plan at Management sites 3 and 4 combined*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*

Variable	Odds ratio	Lower 95% CI	Upper 95% CI	P-value
Effect of time, before intervention	1.0039	0.9719	1.0369	0.8157
Change in time effect, after intervention	1.0014	0.9646	1.0395	0.9431
Effect of time, after intervention	1.0052	0.9866	1.0242	0.5857

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Across Management sites 3 and 4, during the pre-intervention phase, the proportion of diabetes patients with a current GP management plan remained relatively constant both before and after the intervention. None of the trends or changes were significantly different from the expected value under the null (OR=1).

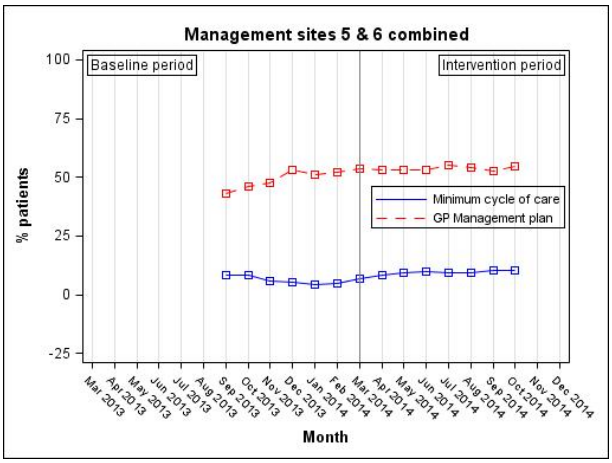

Figure 4.3. *Percentage of active* Aboriginal patients with diabetes at least 15 years of age, and with at least 1 visit in the last 12 months receiving diabetes management: Management sites 5 & 6 combined*

Table 4.8. *Logistic regression results for active* Aboriginal patients with diabetes at least 15 years of age, and with at least 1 visit in the last 12 months, with up-do-date Minimum Cycle of Care (i.e. completed within last 12 months) at Management sites 5 & 6 combined*

Variable	Odds ratio	Lower 95% CI	Upper 95% CI	P-value
Effect of time, before intervention	0.8601	0.7699	0.9609	0.0077
Change in time effect, after intervention	1.2178	1.0746	1.3800	0.0020
Effect of time, after intervention	1.0474	0.9884	1.1100	0.1177

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Across Management sites 5 and 6, during the pre-intervention phase, the proportion of diabetes patients receiving the minimum cycle of diabetes care was significantly decreasing, with each month associated with a 0.86-fold decrease in the odds of diabetes management (p=0.0077). Post-

intervention, there was a significant increase in the trend (OR=1.22, p=0.0020), with the proportion tending to increase post-intervention (OR=1.05), albeit non-significantly (p=0.12).

Table 4.9. *Logistic regression results for active* Aboriginal patients with diabetes at least 15 years of age, and with at least 1 visit in the last 12 months, with a current GP Management Plan at Management sites 5 and 6 combined*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.0763	1.0212	1.1344	0.0061
Change in time effect, after intervention	0.9317	0.8754	0.9917	0.0262
Effect of time, after intervention	1.0028	0.9698	1.0370	0.8686

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Across Management sites 5 and 6, during the pre-intervention phase, the proportion of diabetes patients with a current GP management plan was significantly increasing, with each month associated with a 1.08-fold increase in the odds of diabetes management (p=0.0061). Post- intervention, there was a significant decrease in the trend (OR=0.93, p=0.026), with the proportion remaining relatively constant after intervention (OR=1.00, p=0.87).

3.4.3 Analyses within individual sites

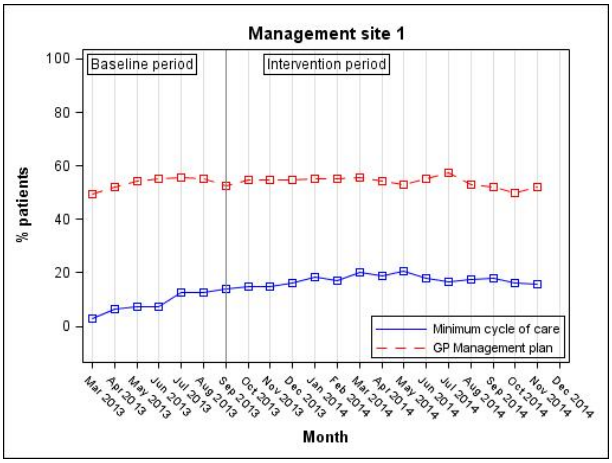

Figure 4.4. *Percentage of active* Aboriginal patients with diabetes at least 15 years of age, and with at least 1 visit in the last 12 months, receiving diabetes management: Management site 1*

Table 4.10. *Logistic regression results for active* Aboriginal patients with diabetes at least 15 years of age, and with at least 1 visit in the last 12 months, with up-do-date Minimum Cycle of Care (i.e. completed within last 12 months) at Management site 1*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.2563	1.1345	1.3913	<.0001
Change in time effect, after intervention	0.7993	0.7196	0.8879	<.0001
Effect of time, after intervention	1.0042	0.9793	1.0297	0.7443

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Management site 1, during the pre-intervention phase, the proportion of diabetes patients receiving the minimum cycle of diabetes care was significantly increasing, with each month associated with a 1.26-fold increase in the odds of diabetes management (p<0.0001). Post- intervention, there was a significant decrease in the trend (OR=0.80, p<0.0001), with the proportion remaining relatively constant post-intervention (OR=1.00).

Table 4.11. *Logistic regression results for active* Aboriginal patients with diabetes at least 15 years of age, and with at least 1 visit in the last 12 months, with a current GP Management Plan at Management site 1*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.0261	0.9707	1.0846	0.3628
Change in time effect, after intervention	0.9639	0.9090	1.0222	0.2197
Effect of time, after intervention	0.9891	0.9703	1.0082	0.2603

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Management site 1, during the pre-intervention phase, the proportion of diabetes patients with a current GP management plan remained relatively constant both before and after the intervention. None of the trends or changes were significantly different from the expected value under the null (OR=1).

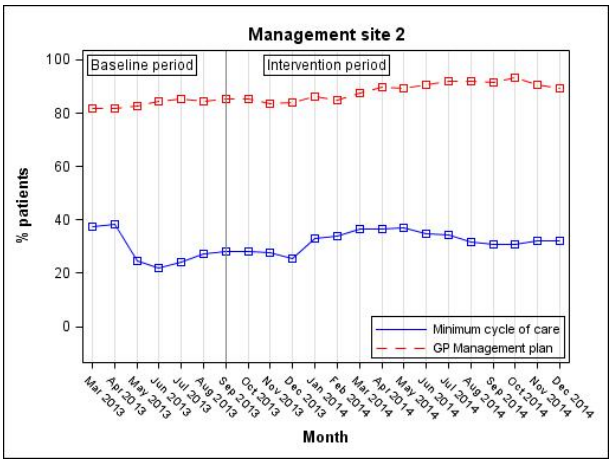

Figure 4.5. *Percentage of active* Aboriginal patients with diabetes at least 15 years of age, and with at least 1 visit in the last 12 months receiving diabetes management: Management site 2*

Table 4.12. *Logistic regression results for active* Aboriginal patients with diabetes at least 15 years of age, and with at least 1 visit in the last 12 months, with up-do-date Minimum Cycle of Care (i.e. completed within last 12 months) at Management site 2*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	0.9192	0.8580	0.9847	0.0164
Change in time effect, after intervention	1.0979	1.0220	1.1796	0.0107
Effect of time, after intervention	1.0092	0.9892	1.0296	0.3715

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Management site 2, during the pre-intervention phase, the proportion of diabetes patients receiving the minimum cycle of diabetes care was significantly decreasing, with each month associated with a 0.92-fold decrease in the odds of diabetes management (p=0.016). Post- intervention, there was a significant increase in the trend (OR=1.10, p=0.01), with the proportion remaining relatively constant post-intervention (OR=1.01; p=0.37).

Table 4.13. *Logistic regression results for active* Aboriginal patients with diabetes at least 15 years of age, and with at least 1 visit in the last 12 months, with a current GP Management Plan at Management site 2*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.0469	0.9625	1.1386	0.2853
Change in time effect, after intervention	1.0147	0.9280	1.1094	0.7491

Variable	Odds ratio	Lower 95% CI	Upper 95% CI	P-value
Effect of time, after intervention	1.0622	1.0307	1.0947	<.0001

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Management site 2, during the pre-intervention phase, the proportion of diabetes with a current GP management plan was non-significantly increasing (OR=1.05, p=0.29. Post- intervention, there was a further, non-significant increase in the trend (OR=1.01, p=0.57). The combination of these two effects produced a significant increase in the proportion post-intervention (OR=1.06, p<0.0001).

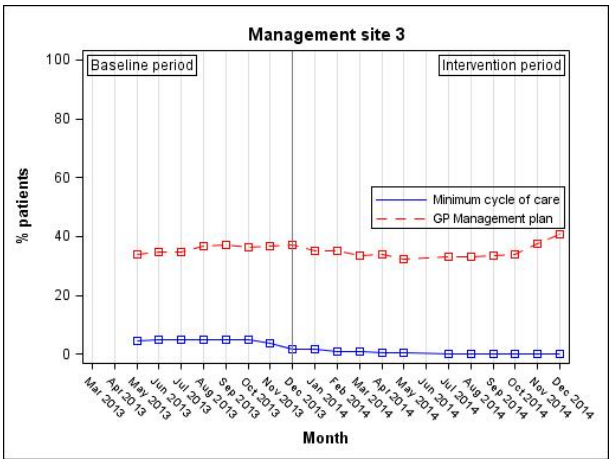

Figure 4.6. *Percentage of active* Aboriginal patients with diabetes at least 15 years of age, and with at least 1 visit in the last 12 months receiving diabetes management: Management site 3*

Table 4.14. *Logistic regression results for active* Aboriginal patients with diabetes at least 15 years of age, and with at least 1 visit in the last 12 months, with up-do-date Minimum Cycle of Care (i.e. completed within last 12 months) at Management site 3*

Variable	Odds ratio	Lower 95% CI	Upper 95% CI	P-value
Effect of time, before intervention	0.9297	0.8484	1.0189	0.1189
Change in time effect, after intervention	0.8369	0.5692	1.2304	0.3653
Effect of time, after intervention	0.7781	0.5351	1.1314	0.1890

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Management site 3, the proportion of diabetes patients receiving the minimum cycle of diabetes care remained relatively constant both before and after the intervention. None of the trends or changes were significantly different from the expected value under the null (OR=1).

Table 4.15. *Logistic regression results for active* Aboriginal patients at least 15 years of age, and with at least 1 visit in the last 12 months, with a current GP Management Plan at Management site 3*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.0203	0.9818	1.0602	0.3055
Change in time effect, after intervention	0.9929	0.9507	1.0370	0.7492
Effect of time, after intervention	1.0131	0.9927	1.0339	0.2097

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Management site 3, the proportion of diabetes patients with a current GP management plan remained relatively constant both before and after the intervention. None of the trends or changes were significantly different from the expected value under the null (OR=1).

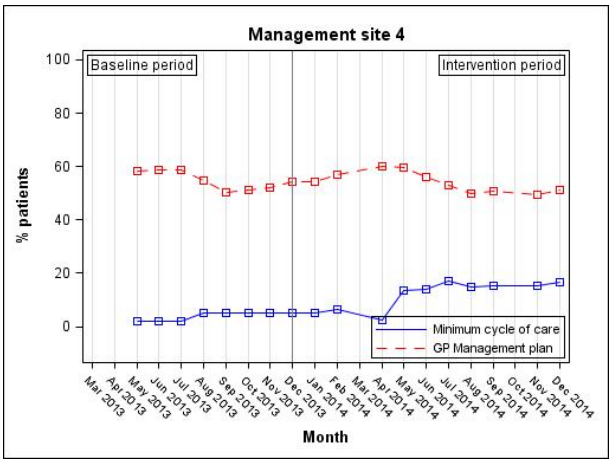

Figure 4.7. *Percentage of active* Aboriginal patients with diabetes at least 15 years of age, and with at least 1 visit in the last 12 months receiving diabetes management: Management site 4*

Table 4.16. *Logistic regression results for active* Aboriginal patients with diabetes at least 15 years of age, and with at least 1 visit in the last 12 months, with up-do-date Minimum Cycle of Care (i.e. completed within last 12 months) at Management site 4*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.1496	0.9763	1.3537	0.0944
Change in time effect, after intervention	0.9697	0.8155	1.1531	0.7278
Effect of time, after intervention	1.1148	1.0525	1.1807	0.0002

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Management site 4, during the pre-intervention phase, the proportion of diabetes patients receiving the minimum cycle of diabetes care was increasing (OR=1.15), but the increase was non-significant

due to the low baseline proportion (i.e. low power). Post- intervention, there was a slight decrease in the trend, but the proportion was significantly increasing post-intervention (OR=1.11, p=0.0002).

Table 4.17. *Logistic regression results for active* Aboriginal patients at least 15 years of age, and with at least 1 visit in the last 12 months, with a current GP Management Plan at Management site 4*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	0.9574	0.8984	1.0202	0.1793
Change in time effect, after intervention	1.0137	0.9421	1.0908	0.7149
Effect of time, after intervention	0.9705	0.9358	1.0065	0.1075

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Management site 4, the proportion of diabetes patients with a current GP management plan remained relatively constant both before and after the intervention. None of the trends or changes were significantly different from the expected value under the null (OR=1).

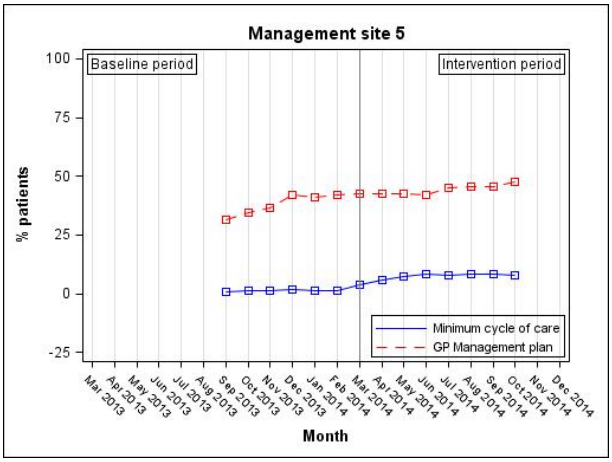

Figure 4.8. *Percentage of active* Aboriginal patients with diabetes at least 15 years of age, and with at least 1 visit in the last 12 months receiving diabetes management: Management site 5*

Table 4.18. *Logistic regression results for active* Aboriginal patients with diabetes at least 15 years of age, and with at least 1 visit in the last 12 months, with up-do-date Minimum Cycle of Care (i.e. completed within last 12 months) at Management site 5*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.0479	0.7958	1.3799	0.7391
Change in time effect, after intervention	1.0280	0.7731	1.3670	0.8494
Effect of time, after intervention	1.0772	1.0003	1.1600	0.0489

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Management site 5, during the pre-intervention phase, the proportion of diabetes patients receiving the minimum cycle of diabetes care was non-significantly increasing (OR=1.05, p=0.74. Post-intervention, there was a non-significant increase in the trend (OR=1.03, p=0.85). The combination of these two effects resulted in a modestly significant increase in the proportion post-intervention (OR=1.07, p=0.049).

Table 4.19. *Logistic regression results for active* Aboriginal patients with diabetes at least 15 years of age, and with at least 1 visit in the last 12 months, with a current GP Management Plan at Management site 5*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.1020	1.0352	1.1731	0.0023
Change in time effect, after intervention	0.9354	0.8693	1.0066	0.0742
Effect of time, after intervention	1.0308	0.9921	1.0710	0.1199

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Management site 5, during the pre-intervention phase, the proportion of diabetes patients with a current GP management plan was significantly increasing (OR=1.10, p=0.0023. Post- intervention, there was a non-significant decrease in the trend (OR=0.94, p=0.074). Post-intervention, the proportion still tended to increase, albeit non-significantly (OR=1.03, p=0.12).

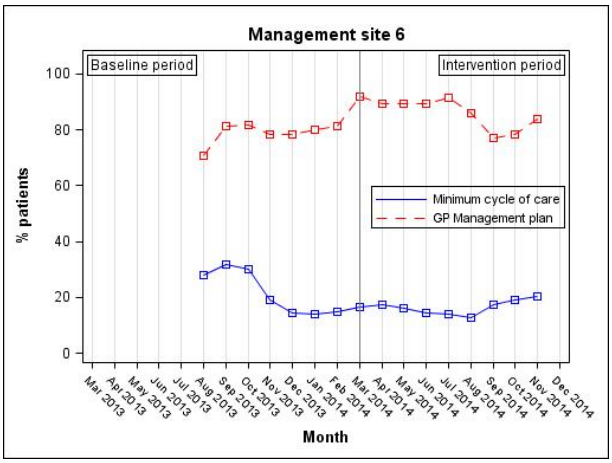

Figure 4.9. *Percentage of active* Aboriginal patients with diabetes at least 15 years of age, and with at least 1 visit in the last 12 months receiving diabetes management: Management site 6*

Table 4.20. *Logistic regression results for active* Aboriginal patients with diabetes at least 15 years of age, and with at least 1 visit in the last 12 months, with up-do-date Minimum Cycle of Care (i.e. completed within last 12 months) at Management site 6*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	0.8234	0.7421	0.9136	0.0002
Change in time effect, after intervention	1.2454	1.0920	1.4203	0.0011
Effect of time, after intervention	1.0255	0.9462	1.1114	0.5398

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Management site 6, during the pre-intervention phase, the proportion of diabetes patients receiving the minimum cycle of diabetes care was significantly decreasing, with each month associated with a 0.82-fold decrease in the odds of diabetes management (p=0.0002). Post- intervention, there was a significant increase in the trend (OR=1.25, p=0.0011), with the proportion tending to slightly increase (OR=1.03), albeit non-significantly (p=0.54), post-intervention.

Table 4.21. *Logistic regression results for active* Aboriginal patients with diabetes at least 15 years of age, and with at least 1 visit in the last 12 months, with a current GP Management Plan at Management site 6*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.0578	0.9557	1.1709	0.2779
Change in time effect, after intervention	0.8268	0.7223	0.9465	0.0058
Effect of time, after intervention	0.8747	0.8000	0.9562	0.0032

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At Management site 6, during the pre-intervention phase, the proportion of diabetes patients with a current GP management plan was non-significantly increasing (OR=1.06, p=0.28). Post- intervention, there was a significant decrease in the trend (OR=0.83, p=0.0058), with the proportion significantly decreasing post-intervention (OR=0.87, p=0.0032).

3.5 Results for Outcome 4: Diabetes Control (HbA1c <7%)

Table 5.1. *Baseline rates of active* Aboriginal patients at least 15 years of age with diabetes and with HbA1c recorded in last six months where HbA1c results were in recommended goal range of <7% at each Management site*

Management site	Month of baseline record	% diabetes patients with HbA1c in goal range of <7%
1	Mar 2013	37%
2	Mar 2013	45%
3	May 2013	31%
4	May 2013	34%
5	Sep 2013	40%
6	Aug 2013	47%

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Table 5.2. *Logistic regression results for active* Aboriginal patients with diabetes at least 15 years of age and HbA1c recorded in the last 6 months where HbA1c result was <7% across all 6 Management sites*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	0.9971	0.9646	1.0307	0.8652
Change in time effect, after intervention	1.0206	0.9846	1.0580	0.2656
Effect of time, after intervention	1.0177	1.0040	1.0317	0.0114

*Active patient is defined as having attended the service at least 3 times in the last 2 years

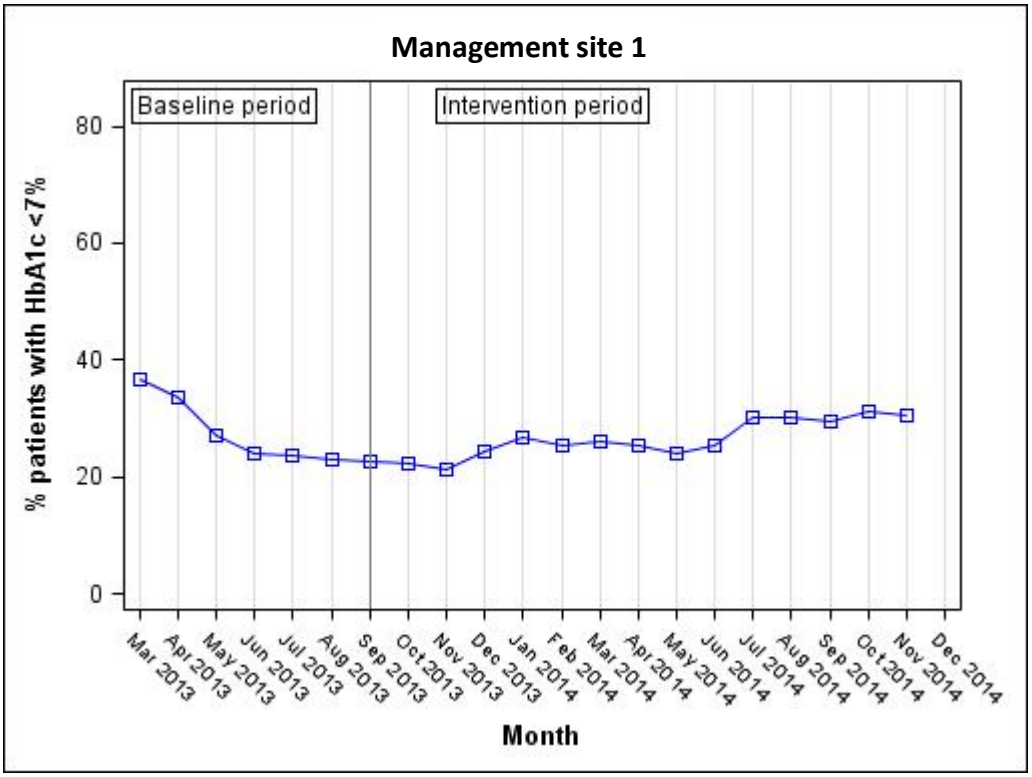

Figure 5.1. *Percentage of active* Aboriginal patients with diabetes at least 15 years of age and HbA1c recorded in the last 6 months where HbA1c result was <7% at Management site 1*

Table 5.3. *Logistic regression results for active* Aboriginal patients with diabetes at least 15 years of age and HbA1c recorded in the last 6 months where HbA1c result was <7% at Management site 1*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	0.8851	0.8092	0.9682	0.0077
Change in time effect, after intervention	1.1693	1.0640	1.2851	0.0012
Effect of time, after intervention	1.0350	1.0050	1.0658	0.0218

*Active patient is defined as having attended the service at least 3 times in the last 2 years

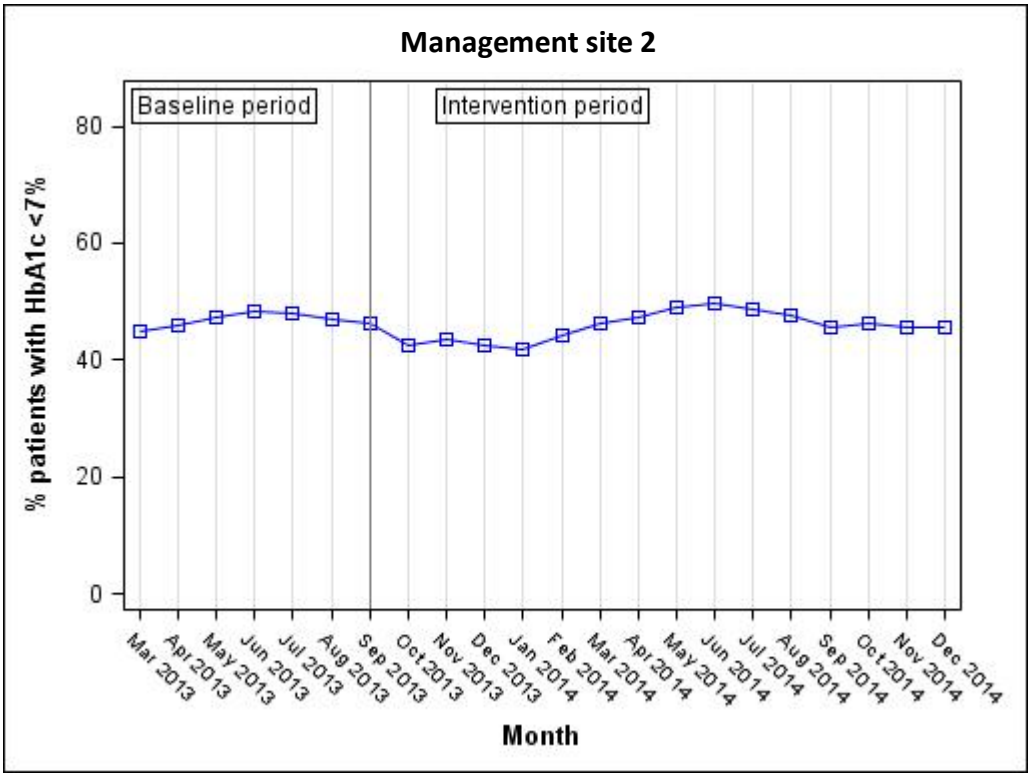

Figure 5.2. *Percentage of active* Aboriginal patients with diabetes at least 15 years of age and HbA1c recorded in the last 6 months where HbA1c result was <7% at Management site 2*

Table 5.4. *Logistic regression results for active* Aboriginal patients with diabetes at least 15 years of age and HbA1c recorded in the last 6 months where HbA1c result was <7% at Management site 2*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.0090	0.9393	1.0839	0.8058
Change in time effect, after intervention	1.0034	0.9311	1.0813	0.9287
Effect of time, after intervention	1.0125	0.9908	1.0347	0.2624

*Active patient is defined as having attended the service at least 3 times in the last 2 years

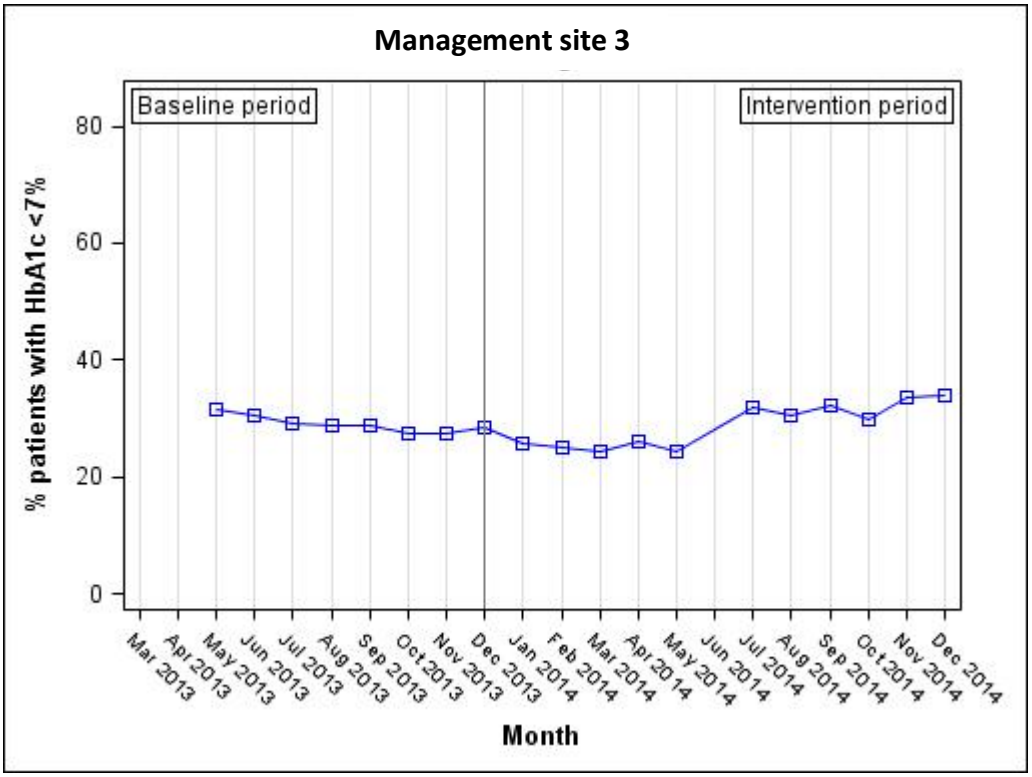

Figure 5.3. *Percentage of active* Aboriginal patients with diabetes at least 15 years of age and HbA1c recorded in the last 6 months where HbA1c result was <7% at Management site 3*

Table 5.5. *Logistic regression results for active* Aboriginal patients with diabetes at least 15 years of age and HbA1c recorded in the last 6 months where HbA1c result was <7% at Management site 3*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	0.9767	0.9145	1.0432	0.4831
Change in time effect, after intervention	1.0701	0.9939	1.1521	0.0722
Effect of time, after intervention	1.0452	1.0107	1.0809	0.0098

*Active patient is defined as having attended the service at least 3 times in the last 2 years

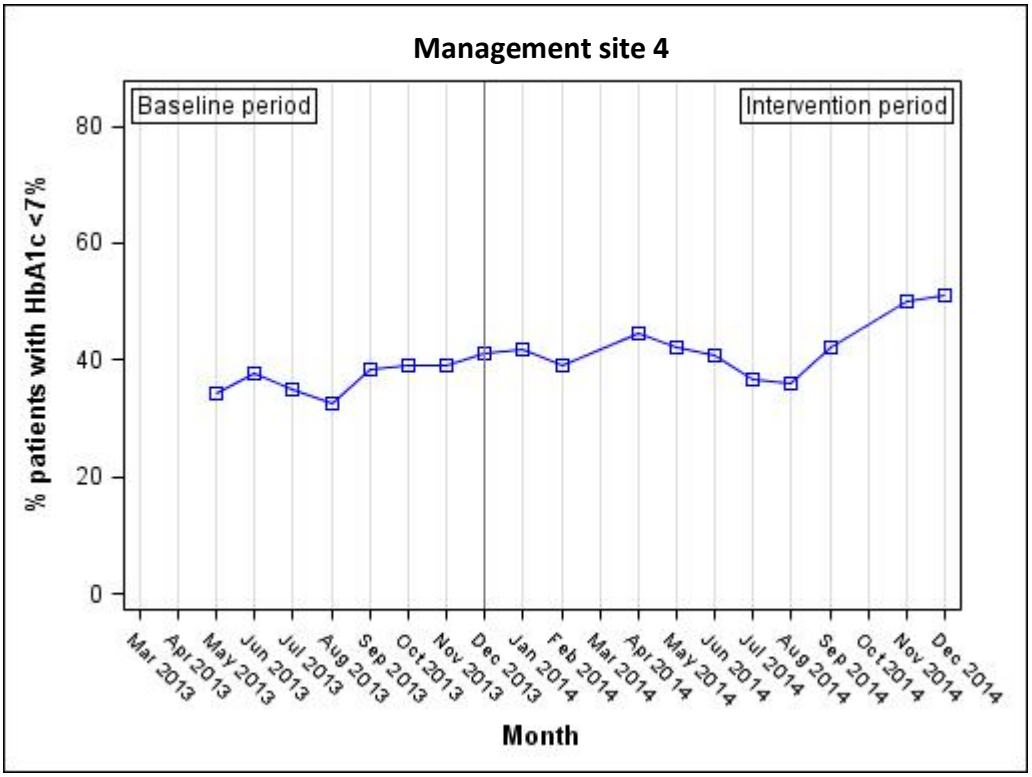

Figure 5.4. *Percentage of active* Aboriginal patients with diabetes at least 15 years of age and HbA1c recorded in the last 6 months where HbA1c result was <7% at Management site 4*

Table 5.6. *Logistic regression results for active* Aboriginal patients with diabetes at least 15 years of age and HbA1c recorded in the last 6 months where HbA1c result was <7% at Management site 4*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.0374	0.9370	1.1485	0.4799
Change in time effect, after intervention	0.9927	0.8841	1.1147	0.9017
Effect of time, after intervention	1.0298	0.9744	1.0884	0.2976

*Active patient is defined as having attended the service at least 3 times in the last 2 years

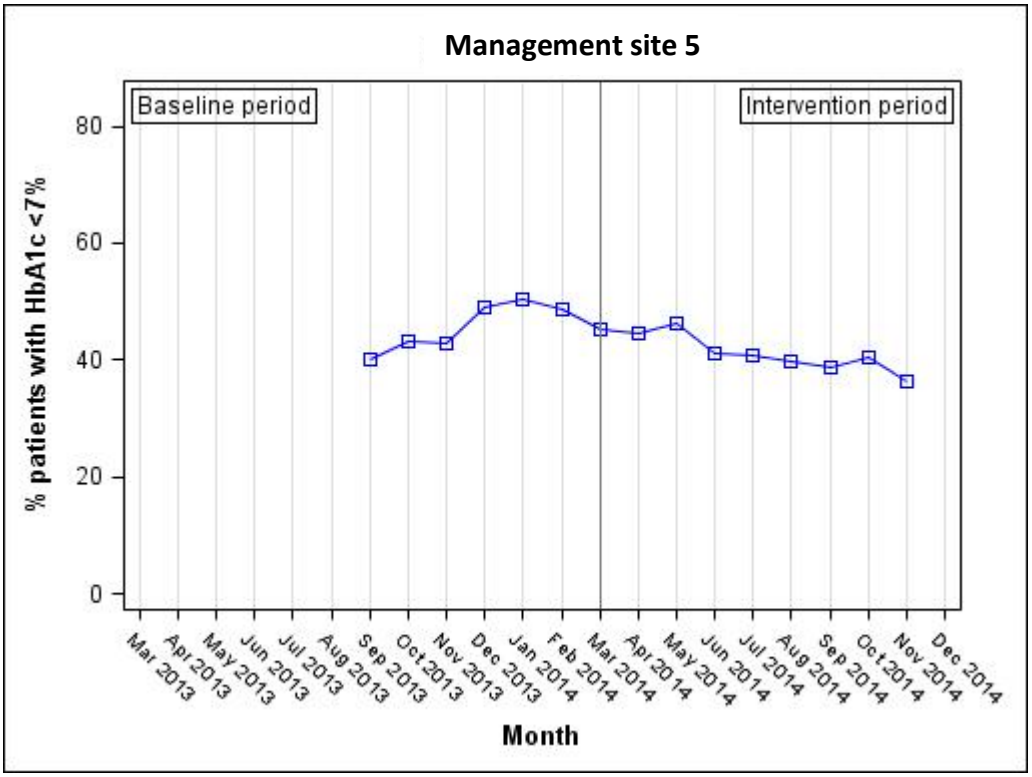

Figure 5.5. *Percentage of active* Aboriginal patients with diabetes at least 15 years of age and HbA1c recorded in the last 6 months where HbA1c result was <7% at Management site 5*

Table 5.7. *Logistic regression results for active* Aboriginal patients with diabetes at least 15 years of age and HbA1c recorded in the last 6 months where HbA1c result was <7% at Management site 5*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.0848	0.9961	1.1814	0.0614
Change in time effect, after intervention	0.8828	0.8010	0.9730	0.0120
Effect of time, after intervention	0.9577	0.9140	1.0035	0.0700

*Active patient is defined as having attended the service at least 3 times in the last 2 years

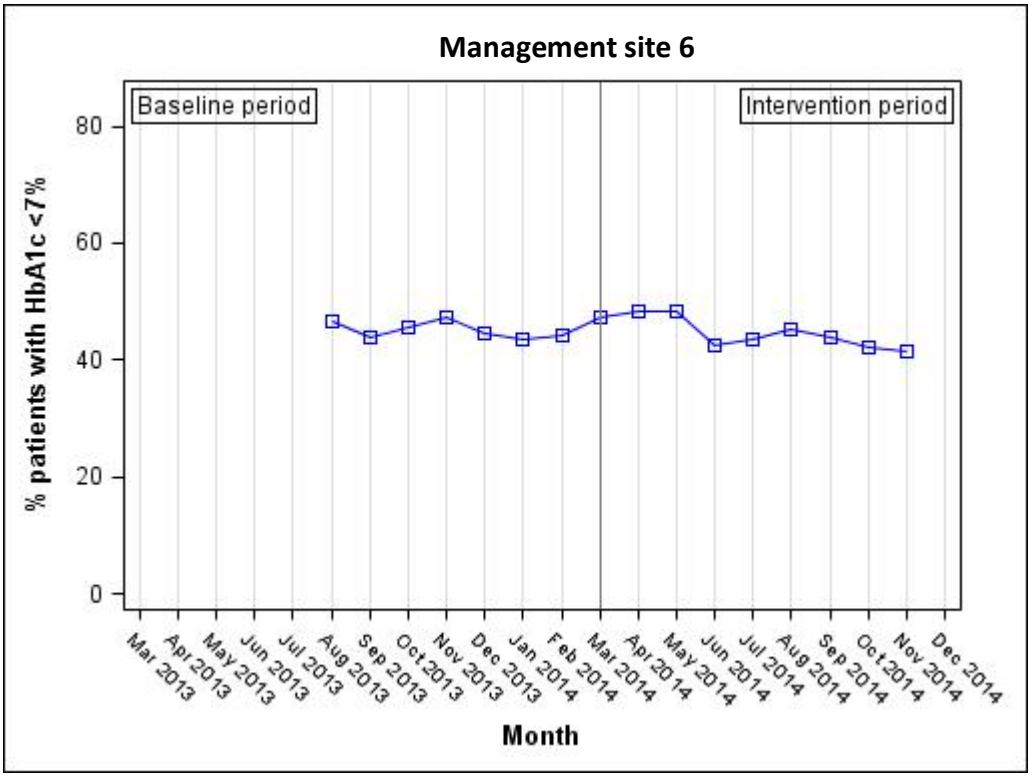

Figure 5.6. *Percentage of active* Aboriginal patients with diabetes at least 15 years of age and HbA1c recorded in the last 6 months where HbA1c result was <7% at Management site 6*

Table 5.8. *Logistic regression results for active* Aboriginal patients with diabetes at least 15 years of age and HbA1c recorded in the last 6 months where HbA1c result was <7% at Management site 6*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	0.9871	0.8948	1.0888	0.7948
Change in time effect, after intervention	0.9812	0.8705	1.1060	0.7565
Effect of time, after intervention	0.9685	0.9043	1.0373	0.3611

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Table 5.9. *Logistic regression results for active* Aboriginal patients with diabetes at least 15 years of age and HbA1c recorded in the last 6 months where HbA1c result was <7% at Management sites 1 and 2 combined*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	0.9586	0.9067	1.0134	0.1360
Change in time effect, after intervention	1.0644	1.0042	1.1283	0.0357
Effect of time, after intervention	1.0203	1.0027	1.0383	0.0236

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Table 5.10. *Logistic regression results for active* Aboriginal patients with diabetes at least 15 years of age and HbA1c recorded in the last 6 months where HbA1c result was <7% at Management sites 3 and 4 combined*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	0.9946	0.9410	1.0512	0.8467
Change in time effect, after intervention	1.0466	0.9834	1.1138	0.1521
Effect of time, after intervention	1.0409	1.0115	1.0711	0.0060

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Table 5.11. *Logistic regression results for active* Aboriginal patients with diabetes at least 15 years of age and HbA1c recorded in the last 6 months where HbA1c result was <7% at Management sites 5 and 6 combined*

Variable	*Odds ratio*	*Lower 95% CI*	*Upper 95% CI*	*P-value*
Effect of time, before intervention	1.0446	0.9799	1.1135	0.1813
Change in time effect, after intervention	0.9203	0.8540	0.9916	0.0292
Effect of time, after intervention	0.9613	0.9249	0.9991	0.0449

*Active patient is defined as having attended the service at least 3 times in the last 2 years

3.6 Associations of age and sex with Chronic Disease screening using Medicare Item 715 48

Table 6.1. Odds ratios showing the relative odds of being screened using Medicare Item 715 for active* Aboriginal patients and with at least 1 visit in last 12 months aged 15-54 years, versus 55+ years.

Screening Site	Odds ratio (95% CI)	p-value
1	0.58	0.001
2	0.48	<0.0001
3	0.34	<0.0001
4	1.10	0.70
5	0.66	0.015
All combined	0.62 (0.54, 0.71)	<0.0001

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At four of the individual screening sites, and across all sites combined, participants were significantly less likely to be screened if they were aged 15-54 years, compared to participants aged 55+ (combined OR=0.62, p<0.0001).

Table 6.2. Odds ratios showing the relative odds of being screened using Medicare Item 715 for for active* Aboriginal patients and with at least 1 visit in last 12 months for men, versus women.

Screening Site	Odds ratio (95% CI)	p-value
1	1.16	0.24
2	1.37	0.005
3	0.85	0.24
4	1.21	0.16
5	1.16	0.31
All combined	1.15 (1.03, 1.28)	0.01

*Active patient is defined as having attended the service at least 3 times in the last 2 years

There was a tendency for men to be screened slightly more frequently than women across most sites, although the association was non-significant at most individual sites. The combined odds ratio was 1.15 (p=0.01).

Table 6.3. Odds ratios showing the relative odds of being screened using Medicare Item 715 for active* Aboriginal patients and with at least 1 visit in last 12 months aged 15-54 years, versus 55+ years within male participants.

Screening Site	Odds ratio (95% CI)	p-value
1	0.45	0.0013
2	0.48	0.0018
3	0.46	0.0014
4	0.85	0.58
5	0.52	0.0088
All combined	0.58 (0.47, 0.71)	<0.0001

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Within male participants, at four of the individual screening sites, and across all sites combined,**49** participants were significantly less likely to be screened if they were aged 15-54 years, compared to participants aged 55+ (combined OR=0.58, p<0.0001). This is consistent with the results for both sexes combined (see Table 6.1).

Table 6.4. Odds ratios showing the relative odds of being screened using Medicare Item 715 for active* Aboriginal patients and with at least 1 visit in last 12 months aged 15-54 years, versus 55+ years within female participants.

Screening Site	Odds ratio (95% CI)	p-value
1	0.73	0.17
2	0.49	0.0003
3	0.28	<0.0001
4	1.51	0.1032
5	0.81	0.34
All combined	0.66 (0.55, 0.80)	<0.0001

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Within female participants, at two of the individual screening sites, and across all sites combined, participants were significantly less likely to be screened if they were aged 15-54 years, compared to participants aged 55+ (combined OR=0.66, p<0.0001). This is consistent with the results for both sexes combined (see Table 6.1).

3.7 Associations of age and sex with screening for Diabetes using Random Blood Glucose50 (RBG)

Table 7.1. Odds ratios showing the relative odds of being screened for diabetes using random blood glucose for active* Aboriginal patients and with at least 1 visit in last 12 months aged 15-44 years, versus 45-64 years.

Screening Site	Odds ratio (95% CI)	p-value
1	0.58	0.002
2	0.49	<0.0001
3	0.15	<0.0001
4	0.51	<0.0001
5		
All combined	0.37 (0.32, 0.42)	<0.0001

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At four of the individual sites, and across all sites combined, participants were significantly less likely to be screened if they were aged 15-44 years, compared to participants aged 45-64 years. The combined odds ratio was 0.37 ($p<0.0001$).

Table 7.2. Odds ratios showing the relative odds of being screened for diabetes using random blood glucose for active* Aboriginal patients and with at least 1 visit in last 12 months aged 15-44 years, versus 65+ years.

Screening Site	Odds ratio (95% CI)	p-value
1	0.45	0.04
2	0.32	0.0001
3	0.07	<0.0001
4	0.85	0.61
5		
All combined	0.27 (0.20, 0.36)	<0.0001

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At three of the individual sites, and across all sites combined, participants were significantly less likely to be screened if they were aged 15-44 years, compared to participants aged 65+ years. The combined odds ratio was 0.27 ($p<0.0001$).

Table 7.3. Odds ratios showing the relative odds of being screened for diabetes using random blood glucose for men, versus women.

Screening Site	Odds ratio (95% CI)	p-value
1	0.90	0.54
2	1.17	0.15
3	0.89	0.28
4	1.10	0.50
5	1.17	0.12
All combined	1.04 (0.94, 1.14)	0.48

*Active patient is defined as having attended the service at least 3 times in the last 2 years

There was no association of sex with screening using RBG. That is, participants were just as likely to be screened if they were men or women.

Table 7.4. Odds ratios showing the relative odds of being screened for diabetes using random blood glucose for active* Aboriginal patients and with at least 1 visit in last 12 months aged 15-44 years, versus 45-64 years – within male participants.

Screening Site	Odds ratio (95% CI)	p-value
1	0.51	0.02
2	0.63	0.01
3	0.03	<0.0001
4	0.52	0.004
5		
All combined	0.30 (0.25, 0.37)	<0.0001

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Within male participants, at four of the individual screening sites, and across all sites combined, participants were significantly less likely to be screened if they were aged 15-44 years, compared to participants aged 45-64 years (combined OR=0.30, p<0.0001). This is consistent with the results for both sexes combined (see Table 7.1).

Table 7.5. Odds ratios showing the relative odds of being screened for diabetes using random blood glucose for participants aged 15-44 years, versus 65+ years – within male participants.

Screening Site	Odds ratio (95% CI)	p-value
1	0.48	0.20
2	0.58	0.27
3	0.02	<0.0001
4	0.56	0.30
5		
All combined	0.25 (0.16, 0.39)	<0.0001

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Within male participants, at the individual screening sites, there was a tendency for participants to be less likely to be screened if they were aged 15-44 years, compared to participants aged 65+ years. Across all sites, this effect was significant (combined OR=0.25, p<0.0001).

Table 7.6. Odds ratios showing the relative odds of being screened for diabetes using random blood glucose for active* Aboriginal patients and with at least 1 visit in last 12 months aged 15-44 years, versus 45-64 years – within female participants.

Screening Site	Odds ratio (95% CI)	p-value
1	0.63	0.06
2	0.41	<0.0001

3	0.26	<0.0001
4	0.50	0.0007
5		
All combined	0.41 (0.34, 0.49)	<0.0001

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Within female participants, at three of the individual screening sites, and across all sites combined, participants were significantly less likely to be screened if they were aged 15-44 years, compared to participants aged 45-64 years (combined OR=0.41, p<0.0001). This is consistent with the results for both sexes combined (see Table 7.1).

Table 7.7. Odds ratios showing the relative odds of being screened for diabetes using random blood glucose for active* Aboriginal patients and with at least 1 visit in last 12 months aged 15-44 years, versus 65+ years – within female participants.

Screening Site	Odds ratio (95% CI)	p-value
1	0.40	0.16
2	0.23	<0.0001
3	0.06	<0.0001
4	1.24	0.82
5		
All combined	0.27 (0.18, 0.42)	<0.0001

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Within female participants, at two of the individual screening sites, and across all sites combined, participants were significantly less likely to be screened if they were aged 15-44 years, compared to participants aged 65+ years (combined OR=0.27, p<0.0001). This is consistent with the results for both sexes combined (see Table 7.2).

3.8 Associations of age and sex with screening for Diabetes using Fasting Blood Glucose (FBG)

Table 8.1. Odds ratios showing the relative odds of being screened for diabetes using fasting blood glucose for active* Aboriginal patients and with at least 1 visit in last 12 months aged 15-44 years, versus 45-64 years.

Screening Site	Odds ratio (95% CI)	p-value
1	0.33	<0.0001
2	0.25	<0.0001
3	0.17	<0.0001
4	1.80	0.35
5		
All combined	0.30 (0.26, 0.36)	<0.0001

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At three of the individual sites, and across all sites combined, participants were significantly less**53** likely to be screened if they were aged 15-44 years, compared to participants aged 45-64 years. The combined odds ratio was 0.3 (p<0.0001).

Table 8.2. Odds ratios showing the relative odds of being screened for active* Aboriginal patients and with at least 1 visit in last 12 months aged 15-44 years, versus 65+ years.

Screening Site	Odds ratio (95% CI)	p-value
1	0.22	<0.0001
2	0.11	<0.0001
3	0.20	<0.0001
4	1.20	1
5		
All combined	0.24 (0.18, 0.32)	<0.0001

*Active patient is defined as having attended the service at least 3 times in the last 2 years

At three of the individual sites, and across all sites combined, participants were significantly less likely to be screened if they were aged 15-44 years, compared to participants aged 65+ years. The combined odds ratio was 0.24 (p<0.0001).

Table 8.3. Odds ratios showing the relative odds of being screened for diabetes using fasting blood glucose for active* Aboriginal patients and with at least 1 visit in last 12 months for men, versus women.

Screening Site	Odds ratio (95% CI)	p-value
1	0.84	0.25
2	1.01	0.95
3	1.09	0.65
4	0.43	0.09
5	1.47	0.014
All combined	1.02 (0.89, 1.17)	0.76

*Active patient is defined as having attended the service at least 3 times in the last 2 years

There was no association of sex with screening using FBG. That is, participants were just as likely to be screened if they were men or women.

Table 8.4. Odds ratios showing the relative odds of being screened for diabetes using fasting blood glucose for active* Aboriginal patients and with at least 1 visit in last 12 months aged 15-44 years, versus 45-64 years – within male participants.

Screening Site	Odds ratio (95% CI)	p-value
1	0.19	<0.0001
2	0.20	<0.0001
3	0.23	<0.0001
4	2.11	0.67

5		
All combined	0.25 (0.19, 0.32)	<0.0001

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Within male participants, at three of the individual screening sites, and across all sites combined, participants were significantly less likely to be screened if they were aged 15-44 years, compared to participants aged 45-64 years (combined OR=0.25, p<0.0001). This is consistent with the results for both sexes combined (see Table 8.1).

Table 8.5. Odds ratios showing the relative odds of being screened for diabetes using fasting blood glucose for active* Aboriginal patients and with at least 1 visit in last 12 months aged 15-44 years, versus 65+ years – within male participants.

Screening Site	**Odds ratio (95% CI)**	**p-value**
1	0.12	<0.0001
2	0.15	<0.0001
3	0.19	0.0023
4	NA*	NA**
5		
All combined	0.20 (0.13, 0.31)	<0.0001

*Active patient is defined as having attended the service at least 3 times in the last 2 years
** Not estimable due to a zero cell count in one category

Within male participants, at three of the individual screening sites, and across all sites combined, participants were significantly less likely to be screened if they were aged 15-44 years, compared to participants aged 65+ years (combined OR=0.20, p<0.0001). This is consistent with the results for both sexes combined (see Table 8.2).

Table 8.6. Odds ratios showing the relative odds of being screened for diabetes using fasting blood**55** glucose for active* Aboriginal patients and with at least 1 visit in last 12 months aged 15-44 years, versus 45-64 years – within female participants.

Screening Site	Odds ratio (95% CI)	p-value
1	0.44	0.0001
2	0.25	<0.0001
3	0.14	<0.0001
4	1.62	0.58
5		
All combined	0.34 (0.28, 0.42)	<0.0001

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Within female participants, at three of the individual screening sites, and across all sites combined, participants were significantly less likely to be screened if they were aged 15-44 years, compared to participants aged 45-64 years (combined OR=0.34, p<0.0001). This is consistent with the results for both sexes combined (see Table 8.1).

Table 8.7. Odds ratios showing the relative odds of being screened for diabetes using fasting blood glucose for active* Aboriginal patients and with at least 1 visit in last 12 months aged 15-44 years, versus 65+ years – within female participants.

Screening Site	Odds ratio (95% CI)	p-value
1	0.35	0.02
2	0.10	<0.0001
3	0.21	0.0007
4	0.86	0.60
5		
All combined	0.27 (0.19, 0.39)	<0.0001

*Active patient is defined as having attended the service at least 3 times in the last 2 years

Within female participants, at three of the individual screening sites, and across all sites combined, participants were significantly less likely to be screened if they were aged 15-44 years, compared to participants aged 65+ years (combined OR=0.27, p<0.0001). This is consistent with the results for both sexes combined (see Table 8.2).

3.9 Associations of age and sex with Management of Diabetes by completing a Minimum56 Cycle of Care

Table 9.1. Odds ratios showing the relative odds of receiving the minimum cycle of care for active patients (i.e. at least 3 visits in last 12 months) with diabetes and at least 1 visit in last 12 months aged 15-44 years, versus 45-64 years.

Management Site	Odds ratio (95% CI)	p-value
1	0.28	0.05
2	0.66	0.48
3	NA*	NA**
4	0.44	0.50
5	0.31	0.15
6	0	0.02
All combined	0.35 (0.18, 0.66)	0.0003

*Active patient is defined as having attended the service at least 3 times in the last 2 years

** Odds ratio not estimable due to a zero cell count in the denominator

Across the individual sites, and across all sites combined, there was a tendency for diabetes patients to be less likely to have completed a minimum cycle of care if they were aged 15-44 years, compared to participants aged 45-64 years. Across all combined sites, the effect was significant (OR=0.35, p=0.0003).

Table 9.2. Odds ratios showing the relative odds of receiving the minimum cycle of care for active patients (i.e. at least 3 visits in last 12 months) with diabetes and at least 1 visit in last 12 months aged 15-44 years, versus 65+ years.

Management Site	Odds ratio (95% CI)	p-value
1	0.29	0.095
2	0.21	0.0085
3	NA*	NA**
4	0.17	0.048
5	0.62	0.67
6	0	0.51
All combined	0.29 (0.14, 0.59)	0.0002

*Active patient is defined as having attended the service at least 3 times in the last 2 years
** Odds ratio not estimable due to a zero cell count in the denominator

Across the individual sites, and across all sites combined, there was a tendency for diabetes patients to be less likely to have completed a minimum cycle of care if they were aged 15-44 years, compared to participants aged 65+ years. Across all combined sites, the effect was significant (OR=0.29, p=0.0002).

Table 9.3. Odds ratios showing the relative odds of receiving the minimum cycle of care for active**57** patients (i.e. at least 3 visits in last 12 months) with diabetes and at least 1 visit in last 12 months for men versus women.

Management Site	Odds ratio (95% CI)	p-value
1	0.86	0.84
2	0.61	0.17
3	NA*	NA*
4	1.76	0.31
5	0.94	1
6	1.15	1
All combined	0.93 (0.63, 1.37)	0.78

* Odds ratio not estimable due to a zero cell count in the denominator

There was no association of sex with the likelihood of diabetes patients having completed a minimum cycle of care. Participants were just as likely to be managed if they were men or women.

Table 9.4. Odds ratios showing the relative odds of receiving the minimum cycle of care for active patients (i.e. at least 3 visits in last 12 months) with diabetes and at least 1 visit in last 12 months aged 15-44 years, versus 45-64 years – within male participants.

Management Site	Odds ratio (95% CI)	p-value
1	0	0.18
2	2.48	0.24
3	NA*	NA*
4	0.39	0.65
5	0	0.17
6	0	0.27
All combined	0.34	0.025

* Odds ratio not estimable due to a zero cell count in the denominator

Note several OR estimates of 0, due to zero participants aged 15-44 receiving the minimum cycle of care.

Within male participants, across the individual sites, and across all sites combined, there was a tendency for diabetes patients to be less likely to have completed a minimum cycle of care if they were aged 15-44 years, compared to participants aged 45-64 years. Across all combined sites, the effect was significant (OR=0.34, p=0.025).

Table 9.5. Odds ratios showing the relative odds of receiving the minimum cycle of care for active**58** patients (i.e. at least 3 visits in last 12 months) with diabetes and at least 1 visit in last 12 months aged 15-44 years, versus 65+ years – within male participants.

Management Site	Odds ratio (95% CI)	p-value
1	0	0.045
2	0.89	1
3	NA*	NA*
4	0.11	0.12
5	0	0.49
6	0	1
All combined	0.25	0.0084

* Odds ratio not estimable due to a zero cell count in the denominator

Within male participants, across the individual sites, and across all sites combined, there was a tendency for diabetes patients to be less likely to have completed a minimum cycle of care if they were aged 15-44 years, compared to participants aged 65+ years. Across all combined sites, the effect was significant (OR=0.25, p=0.0084).

Table 9.6. Odds ratios showing the relative odds of receiving the minimum cycle of care for active patients (i.e. at least 3 visits in last 12 months) with diabetes and at least 1 visit in last 12 months aged 15-44 years, versus 45-64 years – within female participants.

Management Site	Odds ratio (95% CI)	p-value
1	0.37	0.16
2	0.21	0.041
3	NA*	NA*
4	0.52	1
5	0.55	0.71
6	0	0.13
All combined	0.36	0.0073

* Odds ratio not estimable due to a zero cell count in the denominator

Within female participants, across the individual sites, and across all sites combined, there was a tendency for diabetes patients to be less likely to have completed a minimum cycle of care if they were aged 15-44 years, compared to participants aged 45-64 years. Across all combined sites, the effect was significant (OR=0.36, p=0.0073).

Table 9.7. Odds ratios showing the relative odds of receiving the minimum cycle of care for active**59** patients (i.e. at least 3 visits in last 12 months) with diabetes and at least 1 visit in last 12 months aged 15-44 years, versus 65+ years – within female participants.

Management Site	**Odds ratio (95% CI)**	**p-value**
1	0.96	1
2	0.084	0.0016
3	NA*	NA*
4	0.27	0.54
5	1.88	1
6	0	0.47
All combined	0.32	0.0089

* Odds ratio not estimable due to a zero cell count in the denominator (Screened, 45-64 years)

Within female participants, across the individual sites, and across all sites combined, there was a tendency for diabetes patients to be less likely to have completed a minimum cycle of care if they were aged 15-44 years, compared to participants aged 65+ years. Across all combined sites, the effect was significant (OR=0.32, p=0.0089).

3.10 Associations of age and sex with Management of Diabetes with a current GP60 Management Plan

Table 10.1. Odds ratios showing the relative odds of having a current GP management plan for active patients (i.e. at least 3 visits in last 12 months) with diabetes and at least 1 visit in last 12 months aged 15-44 years, versus 45-64 years.

Management Site	Odds ratio (95% CI)	p-value
1	0.61	0.17
2	0.66	0.54
3	0.33	0.0009
4	0.88	0.82
5	1.20	0.64
6	0.48	0.43
All combined	0.64 (0.47, 0.87)	0.0037

Across the individual sites, there was a tendency for diabetes patients to be less likely to have a current GP management plan if they were aged 15-44 years, compared to participants aged 45-64 years. Across all sites combined, this effect was significant (OR=0.64, p=0.0037).

Table 10.2. Odds ratios showing the relative odds of having a current GP management plan for active patients (i.e. at least 3 visits in last 12 months) with diabetes and at least 1 visit in last 12 months aged 15-44 years, versus 65+ years.

Management Site	Odds ratio (95% CI)	p-value
1	0.49	0.13
2	0	0.022
3	0.32	0.0081
4	0.43	0.23
5	0.90	0.85
6	0.11	0.059
All combined	0.45 (0.31, 0.67)	<0.0001

Across the individual sites, there was a tendency for diabetes patients to be less likely to have a current GP management plan if they were aged 15-44 years, compared to participants aged 65+ years. Across all sites combined, this effect was significant (OR=0.45, p<0.0001).

Table 10.3. Odds ratios showing the relative odds of having a current GP management plan for active patients (i.e. at least 3 visits in last 12 months) with diabetes and at least 1 visit in last 12 months for men versus women.

Management Site	Odds ratio (95% CI)	p-value
1	0.91	0.77
2	0.85	0.80
3	0.55	0.02
4	1.30	0.56
5	0.53	0.015
6	0.63	0.74

All combined	0.75 (0.58, 0.97)	0.022

Aggregated across sites, men had significantly lower odds than women of having a current GP Management Plan.

Table 10.4. Odds ratios showing the relative odds of having a current GP management plan for active patients (i.e. at least 3 visits in last 12 months) with diabetes and at least 1 visit in last 12 months aged 15-44 years, versus 45-64 years – within male participants.

Management Site	Odds ratio (95% CI)	p-value
1	0.083	0.0005
2	0.52	0.60
3	0.42	0.11
4	0.88	1
5	1.03	1
6	0.13	0.089
All combined	0.41 (0.25, 0.67)	0.0002

Within male patients, across the individual sites, there was a tendency for diabetes patients to be less likely to have a current GP management plan if they were aged 15-44 years, compared to participants aged 45-64 years. Across all sites combined, this effect was significant (OR=0.41, p=0.0002).

Table 10.5. Odds ratios showing the relative odds of having a current GP management plan for active patients (i.e. at least 3 visits in last 12 months) with diabetes and at least 1 visit in last 12 months aged 15-44 years, versus 65+ years – within male participants.

Management Site	Odds ratio (95% CI)	p-value
1	0.093	0.01
2	0	0.49
3	0.26	0.079
4	0.5	0.66
5	1	1
6	0.051	0.038
All combined	0.33	0.0003

Within male patients, across the individual sites, there was a tendency for diabetes patients to be less likely to have a current GP management plan if they were aged 15-44 years, compared to participants aged 65+ years. Across all sites combined, this effect was significant (OR=0.33, p=0.0003).

Table 10.6. Odds ratios showing the relative odds of having a current GP management plan for**62** active patients (i.e. at least 3 visits in last 12 months) with diabetes and at least 1 visit in last 12 months aged 15-44 years, versus 45-64 years – within female participants.

Management Site	Odds ratio (95% CI)	p-value
1	1.48	0.51
2	0.78	0.71
3	0.29	0.0073
4	0.91	1
5	1.30	0.54
6	1.62	1
All combined	0.87	0.54

* Odds ratio not estimable due to a zero cell count in the denominator (Screened, 45-64 years)

Within female patients, there was no particular tendency for diabetes patients to be less likely to have a current GP management plan if they were aged 15-44 years, compared to participants aged 45-64 years.

Table 10.7. Odds ratios showing the relative odds of having a current GP management plan for active patients (i.e. at least 3 visits in last 12 months) with diabetes and at least 1 visit in last 12 months aged 15-44 years, versus 65+ years – within female participants.

Management Site	Odds ratio (95% CI)	p-value
1	0.92	1
2	0	0.078
3	0.38	0.078
4	0.38	0.40
5	0.8	0.80
6	0	1
All combined	0.56	0.032

Within female patients, across the individual sites, there was a tendency for diabetes patients to be less likely to have a current GP management plan if they were aged 15-44 years, compared to participants aged 65+ years. Across all sites combined, this effect was significant (OR=0.56, p=0.032).

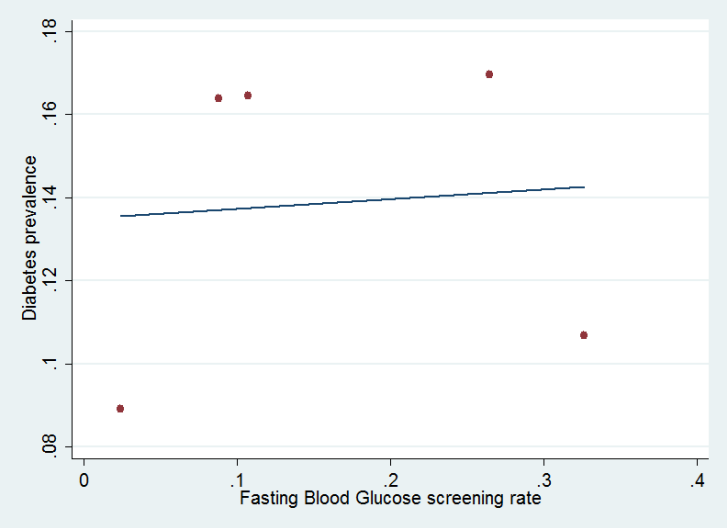

Figure 11.1. Scatter plot with regression line showing the relationship between diabetes prevalence and fasting blood glucose (FBG) screening at final follow-up.

Linear regression slope = 0.024 (-0.520, 0.567), p=0.898, R^2=0.006. There was no evidence for association between screening using FBG and diabetes prevalence. The slope was close to zero, p-value was close to 1, and R^2 was close to zero, indicating that FBG explained none of the variance in diabetes prevalence.

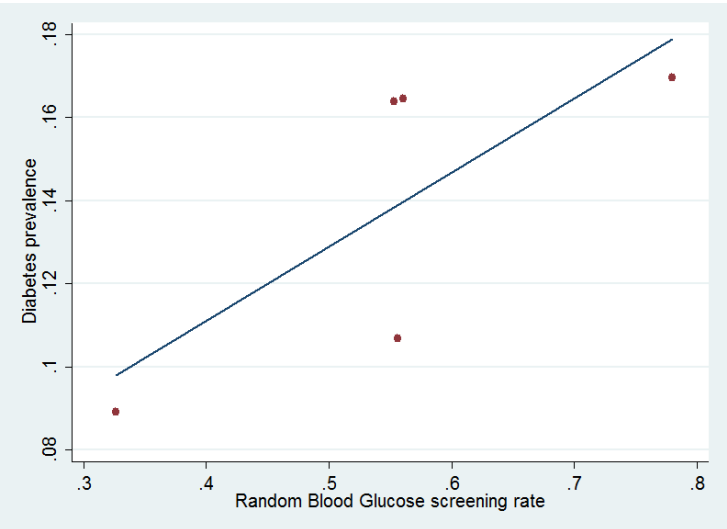

Figure 11.2. Scatter plot with regression line showing the relationship between diabetes prevalence and random blood glucose (FBG) screening at final follow-up.

Linear regression slope = 0.179 (-0.105, 0.463), p=0.139, R^2=0.57. The pattern of data suggested a positive relationship between screening using FBG and diabetes prevalence. The slope was ~0.18, suggesting a positive relationship, the p-value was close to 0.14, but power was limited by the small number of data points. The R^2 was 0.57, indicating that RBG explained a moderate component of the variance in diabetes prevalence.