Latino Program - Gerard Gonzalez

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# Statistical Methods

# Summary Statistics

**Table 1a: . Descriptive statistics for Latino Program group by year (of last value per time period)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | Baseline | Year1 | Year2 | Year3 |
| **A1C - Last Measure in Year** | 9.66±2.36 | 9.53±2.12 | 10.22±2.46 | 10.21±2.2 |
| n | 74 | 74 | 74 | 75 |
| **Checks per Day - Last Measure in Year (CGM=No)** | 3.91±1.85 | 3.78±2.18 | 3.97±2.28 | 3.29±2.14 |
| n | 74 | 71 | 63 | 48 |

**Table 1b:. Descriptive statistics for Control group by year (of last value per time period)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | Baseline | Year1 | Year2 | Year3 |
| **A1C - Last Measure in Year** | 9.15±1.63 | 8.99±1.43 | 9.27±1.92 | 9.9±1.78 |
| n | 16 | 15 | 16 | 16 |
| **Checks per Day - Last Measure in Year (CGM=No)** | 3.88±1.68 | 3.51±1.81 | 3.89±2.13 | 3.57±2.3 |
| n | 16 | 15 | 15 | 12 |

Table 1 presents descriptive statistics of A1c and Checks per Day by time period, regardless of age group category.

**Table 2. A1c and BMI Descriptive Statistics by year, age category and group**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| variable | ControlYoung | ControlOld | TrtYoung | TrtOld |
| Base1: A1C - Last Measure in Year |  |  |  |  |
| mean±sd | 8.44±0.75 | 9.473±1.843 | 9.218±2.062 | 10.012±2.548 |
| n | 5 | 11 | 33 | 41 |
| Year1: A1C - Last Measure in Year |  |  |  |  |
| mean±sd | 8.96±0.321 | 9±1.767 | 8.727±1.625 | 10.168±2.262 |
| n | 5 | 10 | 33 | 41 |
| Year2: A1C - Last Measure in Year |  |  |  |  |
| mean±sd | 9.32±1.704 | 9.245±2.096 | 8.773±1.739 | 10.827±2.477 |
| n | 5 | 11 | 22 | 52 |
| Year3: A1C - Last Measure in Year |  |  |  |  |
| mean±sd | 9.3±0.992 | 10.168±2.019 | 8.556±0.577 | 10.656±2.27 |
| n | 5 | 11 | 16 | 59 |
| Base1: Checks per Day - Last Measure in Year (CGM=No) |  |  |  |  |
| mean±sd | 5.24±1.694 | 3.264±1.328 | 4.606±1.562 | 3.341±1.883 |
| n | 5 | 11 | 33 | 41 |
| Year1: Checks per Day - Last Measure in Year (CGM=No) |  |  |  |  |
| mean±sd | 4.3±2.791 | 3.11±1.046 | 5.16±2.053 | 2.774±1.663 |
| n | 5 | 10 | 33 | 41 |
| Year2: Checks per Day - Last Measure in Year (CGM=No) |  |  |  |  |
| mean±sd | 4.36±1.466 | 3.65±2.427 | 5.917±2.345 | 3.187±1.736 |
| n | 5 | 11 | 22 | 52 |
| Year3: Checks per Day - Last Measure in Year (CGM=No) |  |  |  |  |
| mean±sd | 5.067±4.02 | 3.067±1.459 | 5.3±2.447 | 3.001±1.96 |
| n | 5 | 11 | 16 | 59 |

Table 2 presents descriptive statistics of A1c and Checks per Day by treatment group, time period and age category.

# A1C Results

**Table 3A. A1c Over Time: WHOLE COHORT**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Value | Std.Error | p-value |
| (Intercept) | 5.073 | 0.814 | 0.000 |
| baseline\_a1c | 0.517 | 0.057 | 0.000 |
| factor(yeargrouping)Base1 | -0.702 | 0.516 | 0.175 |
| factor(yeargrouping)Year1 | -0.742 | 0.525 | 0.159 |
| factor(yeargrouping)Year2 | -0.544 | 0.513 | 0.290 |
| groupLess than 12 | -0.663 | 0.271 | 0.015 |
| factor(trt\_grp)LP | 0.157 | 0.513 | 0.760 |
| duration\_of\_diagnosis | 0.030 | 0.040 | 0.455 |
| technology\_type\_inyearCGM and Pump | 0.167 | 0.389 | 0.668 |
| technology\_type\_inyearCGM Only | 0.591 | 0.412 | 0.152 |
| technology\_type\_inyearPump Only | -0.798 | 0.266 | 0.003 |
| factor(yeargrouping)Base1:factor(trt\_grp)LP | 0.356 | 0.566 | 0.530 |
| factor(yeargrouping)Year1:factor(trt\_grp)LP | 0.343 | 0.574 | 0.551 |
| factor(yeargrouping)Year2:factor(trt\_grp)LP | 0.733 | 0.564 | 0.195 |

**Table 3b: Difference between Latino Program and Control A1c at each timepoint: WHOLE COHORT**

|  |  |  |  |
| --- | --- | --- | --- |
| contrast | estimate | SE | p.value |
| c\_base1 | 0.513 | 0.504 | 0.311 |
| c\_year1 | 0.500 | 0.514 | 0.333 |
| c\_year2 | 0.890 | 0.513 | 0.086 |
| c\_year3 | 0.157 | 0.513 | 0.760 |

Table 3A-3B show results of mixed effects modeling looking at whether there was a significant difference in A1c in Treatment and Control groups at baseline, year 1 and year 2 (table 3A), as well as results of specific contrasts of interest. There is not a significant difference in trend of A1c over time between groups (table 3A, p=xxx). There was no significant difference in A1c between groups at baseline, year 1 or year 2 (table 3B, p=xxx, p=xxx, p=xxx).

**Table 3c. A1c Over Time: <12 YEARS**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Value | Std.Error | p-value |
| (Intercept) | 4.819 | 0.995 | 0.000 |
| baseline\_a1c | 0.428 | 0.072 | 0.000 |
| factor(yeargrouping)Base1 | -0.694 | 0.870 | 0.428 |
| factor(yeargrouping)Year1 | -0.174 | 0.870 | 0.842 |
| factor(yeargrouping)Year2 | 0.186 | 0.870 | 0.831 |
| factor(trt\_grp)LP | -1.203 | 0.738 | 0.112 |
| duration\_of\_diagnosis | 0.154 | 0.070 | 0.036 |
| technology\_type\_inyearCGM and Pump | 0.924 | 0.511 | 0.074 |
| technology\_type\_inyearCGM Only | -0.092 | 0.704 | 0.896 |
| technology\_type\_inyearPump Only | -0.621 | 0.315 | 0.053 |
| factor(yeargrouping)Base1:factor(trt\_grp)LP | 1.785 | 0.957 | 0.066 |
| factor(yeargrouping)Year1:factor(trt\_grp)LP | 0.785 | 0.950 | 0.411 |
| factor(yeargrouping)Year2:factor(trt\_grp)LP | 0.569 | 0.968 | 0.558 |

**Table 3d: Difference between Latino Program and Control A1c at each timepoint: <12 YEARS**

|  |  |  |  |
| --- | --- | --- | --- |
| contrast | estimate | SE | p.value |
| c\_base1\_young | 0.582 | 0.668 | 0.390 |
| c\_year1\_young | -0.418 | 0.673 | 0.538 |
| c\_year2\_young | -0.634 | 0.712 | 0.380 |
| c\_year3\_young | -1.203 | 0.738 | 0.112 |

**Table 3e. A1c Over Time: 12+ YEARS**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Value | Std.Error | p-value |
| (Intercept) | 4.304 | 1.042 | 0.000 |
| baseline\_a1c | 0.579 | 0.073 | 0.000 |
| factor(yeargrouping)Base1 | -0.554 | 0.625 | 0.377 |
| factor(yeargrouping)Year1 | -0.918 | 0.642 | 0.155 |
| factor(yeargrouping)Year2 | -0.808 | 0.621 | 0.195 |
| factor(trt\_grp)LP | 0.418 | 0.662 | 0.530 |
| duration\_of\_diagnosis | 0.019 | 0.047 | 0.694 |
| technology\_type\_inyearCGM and Pump | 0.621 | 0.559 | 0.268 |
| technology\_type\_inyearCGM Only | 1.266 | 0.512 | 0.014 |
| technology\_type\_inyearPump Only | -0.329 | 0.381 | 0.388 |
| factor(yeargrouping)Base1:factor(trt\_grp)LP | -0.179 | 0.690 | 0.796 |
| factor(yeargrouping)Year1:factor(trt\_grp)LP | 0.366 | 0.707 | 0.605 |
| factor(yeargrouping)Year2:factor(trt\_grp)LP | 1.044 | 0.682 | 0.128 |

**Table 3f: Difference between Latino Program and Control A1c at each timepoint: 12+ YEARS**

|  |  |  |  |
| --- | --- | --- | --- |
| contrast | estimate | SE | p.value |
| c\_base1\_old | 0.240 | 0.672 | 0.723 |
| c\_year1\_old | 0.784 | 0.688 | 0.258 |
| c\_year2\_old | 1.463 | 0.671 | 0.033 |
| c\_year3\_old | 0.418 | 0.662 | 0.530 |

# Checks Per Day Results

**Table 4a. Checks Per Day Over Time: WHOLE COHORT**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Value | Std.Error | p-value |
| (Intercept) | 1.481 | 0.628 | 0.019 |
| baseline\_checks | 0.461 | 0.062 | 0.000 |
| factor(yeargrouping)Base1 | 0.398 | 0.552 | 0.472 |
| factor(yeargrouping)Year1 | -0.132 | 0.560 | 0.814 |
| factor(yeargrouping)Year2 | 0.268 | 0.558 | 0.632 |
| groupLess than 12 | 0.978 | 0.259 | 0.000 |
| factor(trt\_grp)LP | -0.290 | 0.519 | 0.578 |
| duration\_of\_diagnosis | -0.018 | 0.035 | 0.614 |
| technology\_type\_inyearPump Only | 1.416 | 0.241 | 0.000 |
| factor(yeargrouping)Base1:factor(trt\_grp)LP | -0.006 | 0.616 | 0.992 |
| factor(yeargrouping)Year1:factor(trt\_grp)LP | 0.287 | 0.624 | 0.646 |
| factor(yeargrouping)Year2:factor(trt\_grp)LP | 0.063 | 0.623 | 0.920 |

**Table 4b: Difference between Latino Program and Control Checks Per Day at each timepoint: WHOLE COHORT.**

|  |  |  |  |
| --- | --- | --- | --- |
| contrast | estimate | SE | p.value |
| c\_base1 | -0.296 | 0.444 | 0.506 |
| c\_year1 | -0.004 | 0.455 | 0.994 |
| c\_year2 | -0.228 | 0.468 | 0.628 |
| c\_year3 | -0.290 | 0.519 | 0.578 |

**Table 4c. Checks Per Day Over Time: <12 YEARS**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Value | Std.Error | p-value |
| (Intercept) | 1.980 | 1.067 | 0.068 |
| baseline\_checks | 0.653 | 0.116 | 0.000 |
| factor(yeargrouping)Base1 | 0.733 | 1.005 | 0.469 |
| factor(yeargrouping)Year1 | -0.207 | 1.005 | 0.837 |
| factor(yeargrouping)Year2 | -0.147 | 1.005 | 0.884 |
| factor(trt\_grp)LP | -0.398 | 1.034 | 0.703 |
| duration\_of\_diagnosis | -0.250 | 0.084 | 0.005 |
| technology\_type\_inyearPump Only | 2.260 | 0.345 | 0.000 |
| factor(yeargrouping)Base1:factor(trt\_grp)LP | -0.022 | 1.183 | 0.985 |
| factor(yeargrouping)Year1:factor(trt\_grp)LP | 1.101 | 1.181 | 0.355 |
| factor(yeargrouping)Year2:factor(trt\_grp)LP | 1.081 | 1.196 | 0.370 |

**Table 4d: Difference between Latino Program and Control Checks Per Day at each timepoint: <12 YEARS**

|  |  |  |  |
| --- | --- | --- | --- |
| contrast | estimate | SE | p.value |
| c\_base1\_young | -0.420 | 0.712 | 0.559 |
| c\_year1\_young | 0.703 | 0.721 | 0.336 |
| c\_year2\_young | 0.684 | 0.769 | 0.381 |
| c\_year3\_young | -0.398 | 1.034 | 0.703 |

**Table 4e. A1c Over Time: 12+ YEARS**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Value | Std.Error | p-value |
| (Intercept) | 1.206 | 0.721 | 0.097 |
| baseline\_checks | 0.484 | 0.072 | 0.000 |
| factor(yeargrouping)Base1 | 0.317 | 0.629 | 0.615 |
| factor(yeargrouping)Year1 | 0.074 | 0.644 | 0.909 |
| factor(yeargrouping)Year2 | 0.658 | 0.640 | 0.306 |
| factor(trt\_grp)LP | -0.108 | 0.588 | 0.855 |
| duration\_of\_diagnosis | 0.013 | 0.039 | 0.741 |
| technology\_type\_inyearPump Only | 0.618 | 0.320 | 0.056 |
| factor(yeargrouping)Base1:factor(trt\_grp)LP | 0.167 | 0.700 | 0.812 |
| factor(yeargrouping)Year1:factor(trt\_grp)LP | -0.202 | 0.715 | 0.778 |
| factor(yeargrouping)Year2:factor(trt\_grp)LP | -0.521 | 0.708 | 0.463 |

**Table 4f: Difference between Latino Program and Control A1c at each timepoint: 12+ YEARS**

|  |  |  |  |
| --- | --- | --- | --- |
| contrast | estimate | SE | p.value |
| c\_base1\_old | 0.059 | 0.543 | 0.913 |
| c\_year1\_old | -0.310 | 0.558 | 0.581 |
| c\_year2\_old | -0.629 | 0.561 | 0.267 |
| c\_year3\_old | -0.108 | 0.588 | 0.855 |

Table 4A-4B show results of mixed effects modeling looking at whether there was a significant difference in Checks per Day in Treatment and Control groups at baseline, year 1, year 2, and year 3 (table 4A), as well as results of specific comparisons of interest. There is not a significant difference in trend of A1c over time between groups (table 4A, p=xxx). There was no significant difference in Checks per Day between groups at baseline, year 1 or year 2 (table 4B, p=xxx, p=xxx, p=xxx).

# Pump Use Results

**Table 5a: Frequency of pump usage in greater than or equal to 12 years cohort by time period in the Latino Program group**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Characteristic | Base1 (n=41) | Year1 (n=41) | Year2 (n=52) | Year3 (n=59) |
| **Any Pump Use in Given Year**\*\* |  |  |  |  |
| Yes | 4 (10%) | 7 (17%) | 14 (27%) | 21 (36%) |
| No | 37 (90%) | 34 (83%) | 38 (73%) | 38 (64%) |

Year 1 versus Year 3 pump use: 0.013

**Table 5B. Frequency of pump usage in greater than or equal to 12 years cohort by time period in the Control group**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Characteristic | Base1 (n=11) | Year1 (n=10) | Year2 (n=11) | Year3 (n=11) |
| **Any Pump Use in Given Year**\*\* |  |  |  |  |
| Yes | 0 (0%) | 1 (10%) | 2 (18%) | 2 (18%) |
| No | 11 (100%) | 9 (90%) | 9 (82%) | 9 (82%) |

Year 1 versus Year 3 pump use: 0.48

**Table 6A. Frequency of pump usage in the less than 12 years cohort by time period in the Latino Program group**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Characteristic | Base1 (n=33) | Year1 (n=33) | Year2 (n=22) | Year3 (n=16) |
| **Any Pump Use in Given Year**\*\* |  |  |  |  |
| Yes | 6 (18%) | 14 (42%) | 13 (59%) | 12 (75%) |
| No | 27 (82%) | 19 (58%) | 9 (41%) | 4 (25%) |

Year 1 versus Year 3 pump use: 0.008

**Table 6B. Frequency of pump usage in the less than 12 years cohort by time period in the Control group**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Characteristic | Base1 (n=5) | Year1 (n=5) | Year2 (n=5) | Year3 (n=5) |
| **Any Pump Use in Given Year**\*\* |  |  |  |  |
| Yes | 1 (20%) | 1 (20%) | 1 (20%) | 2 (40%) |
| No | 4 (80%) | 4 (80%) | 4 (80%) | 3 (60%) |

Year 1 versus Year 3 pump use: 1

**Table 7A. Frequency of CGM usage in greater than or equal to 12 years cohort by time period in the Latino Program group**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Characteristic | Base1 (n=41) | Year1 (n=41) | Year2 (n=52) | Year3 (n=59) |
| **Any CGM Use in Given Year**\*\* |  |  |  |  |
| Yes | 0 (0%) | 0 (0%) | 7 (13%) | 17 (29%) |
| No | 41 (100%) | 41 (100%) | 45 (87%) | 42 (71%) |

Year 1 versus Year 3 pump use: 0.013

**Table 7B. Frequency of CGM usage in greater than or equal to 12 years cohort by time period in the Control group**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Characteristic | Base1 (n=11) | Year1 (n=10) | Year2 (n=11) | Year3 (n=11) |
| **Any CGM Use in Given Year**\*\* |  |  |  |  |
| Yes | 0 (0%) | 0 (0%) | 1 (9%) | 2 (18%) |
| No | 11 (100%) | 10 (100%) | 10 (91%) | 9 (82%) |

Year 1 versus Year 3 pump use: 0.48

**Table 8A. Frequency of CGM usage in the less than 12 years cohort by time period in the Latino Program group**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Characteristic | Base1 (n=33) | Year1 (n=33) | Year2 (n=22) | Year3 (n=16) |
| **Any CGM Use in Given Year**\*\* |  |  |  |  |
| Yes | 0 (0%) | 3 (9%) | 4 (18%) | 10 (62%) |
| No | 33 (100%) | 30 (91%) | 18 (82%) | 6 (38%) |

Year 1 versus Year 3 pump use: 0.008

**Table 8B. Frequency of CGM usage in the less than 12 years cohort by time period in the Control group**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Characteristic | Base1 (n=5) | Year1 (n=5) | Year2 (n=5) | Year3 (n=5) |
| **Any CGM Use in Given Year**\*\* |  |  |  |  |
| Yes | 0 (0%) | 0 (0%) | 0 (0%) | 2 (40%) |
| No | 5 (100%) | 5 (100%) | 5 (100%) | 3 (60%) |

Year 1 versus Year 3 pump use: 1