



Sample PBM Hemoglobin A1c Initiative: Medivo Program Protocols

Client: Major U.S. PBM

Test: Hemoglobin A1c

Dates: Data is valid from 8/1/2009-5/1/2010

PBM contracted with the home testing subsidiary of a major U.S. laboratory and Medivo to conduct a Hemoglobin A1c test for a targeted list of its members. PBM used a home test kit specimen collection method, with state by state physician oversight provided using Medivo's online platform and technology to facilitate lab test review/approval/results by Medivo's credentialed and contracted physician network.

PROCESS

1. PBM identifies eligible patients to participate in the program. Criteria for participation is based on patients' Rx records including at least one prescription for a diabetes medication.
2. PBM provides the lab with a file of Eligible Participants. The lab sends the list via a secure data connection to Medivo, whose physicians review and approve the requests for HbA1c tests.
3. The lab prints out each authorization form, inserts it in a Lab Home Test Kit, and mails the eligible patients the kits.
4. Patient receives the Lab Home Test Kit, obtains their sample and returns the kit with a signed authorization/consent form. Some patients received the kit and opted not to return it.
5. The lab receives, validates, and processes the kit sample. The Lab enters the results into the vCare platform where the results are reviewed by Medivo physicians.
6. Medivo physicians release the results per the advisory board-approved protocols.
7. The lab test results are sent to the PBM which then provides copies of the report to the patient within the context of education and awareness materials to improve diabetes care.
8. PBM staff, per Medivo protocols, calls and provides counseling for patients whose test results are above identified ranges.
9. PBM provides Medivo with this counseling report. The report lists the patients with their test results above the identified range who were contacted or attempted to be contacted.
10. All result communications are documented in the vCare database for regulatory, compliance, and audit purposes.

RESULTS

Following are the outcomes broken out by gender, age, and state. Additional analyses are available as needed. State, sex and age, when analyzed together (ex. IL Female Age 55) will be referred to as a demographic category.

Outcomes:

In total there were 2,004 tests completed for A1c during the time from August 1, 2009 to May 1, 2010 that were good quality specimens and able to be processed by the lab.

Normal Results: <5.7

At Risk Results: >/= 5.7 to 6.4

Diabetic: >6.4

Summary Findings:

At the conclusion of a successful testing program, we found the following data features, which are highlighted below:

-When stratified by age and risk category (Table 1), male and female results showed no distinct trend as risk category increased. Female participant results were approx. 7% higher in the at-risk category than males, while male results were approximately 5% higher for the diabetes category

-However, when stratification increases to accommodate age category (Tables 2 & 3), noticeable and expected patterns emerge. Given the larger participant pool in the middle age categories (ages 30-70), we see fairly reliable trending toward increased risk with each advancing age category. Male participants in the 30-70 age range demonstrated systematically declining results in the normal category as well as increased results in the risk categories (both in at-risk and diabetic) with age. Female participants did not demonstrate upward trending of risk by age, and in fact, showed fairly even results in the risk categories (implying that age was not a marked determinant for risk within the participant pool)

-When sorted by state and sex (Table 4), DE, SD, MN, NM, WA, TX, OR, VT, WY and VA had the highest percentage of diabetic results overall. Accompanying the total results, male participant data also indicated higher than average diabetic results in these same states.

-When risk was finally sorted at the deepest level by state, age, and sex (Charts 1, 2, 3 and Table 4), geography did not appear to be a strong determinant of risk, as much as age. When categorized together and sorted for the highest combined results from the at-risk and diabetic groups, all highest risk participants were in the 50-70 age category, with the predominance between 50-60 years. However, there was variation of less than 2% in highest risk results between the highest and lowest state, age and sex grouping, implying that there were no clear high risk groups in the participant pool.

Lessons for Future Screening Programs:

-The model of using virtual lab ordering/resulting with home testing kits was a convenient method for the individuals who responded.

-It would also be helpful to understand the targeting algorithm for participants, particularly to help inform why certain states had high mailing and participant rates in select age and sex categories and others very few. This is important, as the descriptive characteristics of these individuals could be correlated against the outcomes that were observed and replicated for future study.

Order Density Map

Highest Density: GREEN, Lowest Density: RED

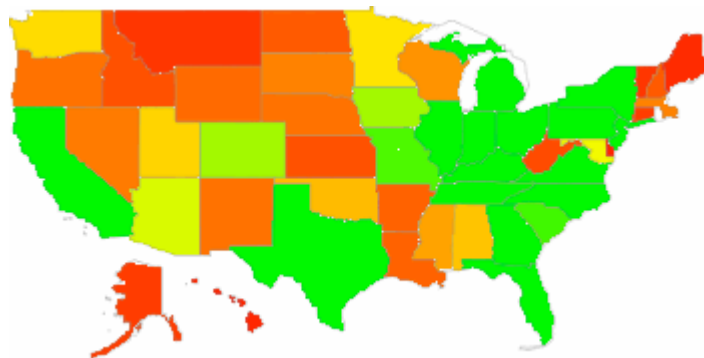


Table 1: Results by Gender (All)

	Normal Results <5.7)	At Risk (5.7- 6.4)	Diabetic (>6.4)	Total Results	Normal Results (%)	At Risk Results	Diabetic Results
Male	295	332	414	1041	28.34%	31.89%	39.77%
Female	248	376	339	963	25.75%	39.04%	35.20%
Totals	543	708	753	2004	27.10%	35.33%	37.57%

Table 2: Results by Age Category and Gender, Individuals (All)

Age Category	Normal Results	At Risk	Diabetic	Total Results	Male Normal	Male At Risk	Male Diabetic	Female Normal	Female At Risk	Female Diabetic
80-90	0	1	2	3	0	1	2	0	0	0
70-80	8	15	17	40	7	7	13	1	8	4
60-70	107	198	265	570	59	107	160	48	91	105
50-60	201	259	244	704	118	132	137	83	127	107
40-50	139	150	135	424	74	61	58	65	89	77
30-40	55	69	60	184	25	19	27	30	50	33
20-30	33	14	29	76	12	4	17	21	10	12
10-20	0	2	1	3	0	1	0	0	1	1
Totals	543	708	753	2004	295	332	414	248	376	339

Table 3: Results by Age Category and Gender, Percentages (All)

Age Category	Normal Results	At Risk	Diabetic	Male Normal	Male At Risk	Male Diabetic	Female Normal	Female At Risk	Female Diabetic
80-90	0.00%	33.33%	66.67%	0.00%	33.33%	66.67%	0.00%	0.00%	0.00%
70-80	20.00%	37.50%	42.50%	17.50%	17.50%	32.50%	2.50%	20.00%	10.00%
60-70	18.77%	34.74%	46.49%	10.35%	18.77%	28.07%	8.42%	15.96%	18.42%
50-60	28.55%	36.79%	34.66%	16.76%	18.75%	19.46%	11.79%	18.04%	15.20%
40-50	32.78%	35.38%	31.84%	17.45%	14.39%	13.68%	15.33%	20.99%	18.16%
30-40	29.89%	37.50%	32.61%	13.59%	10.33%	14.67%	16.30%	27.17%	17.93%
20-30	43.42%	18.42%	38.16%	15.79%	5.26%	22.37%	27.63%	13.16%	15.79%
10-20	0.00%	66.67%	33.33%	0.00%	33.33%	0.00%	0.00%	33.33%	33.33%
Totals	27.10%	35.33%	37.57%	14.72%	16.57%	20.66%	12.38%	18.76%	16.92%

Chart 1: Demographic Distribution of Results

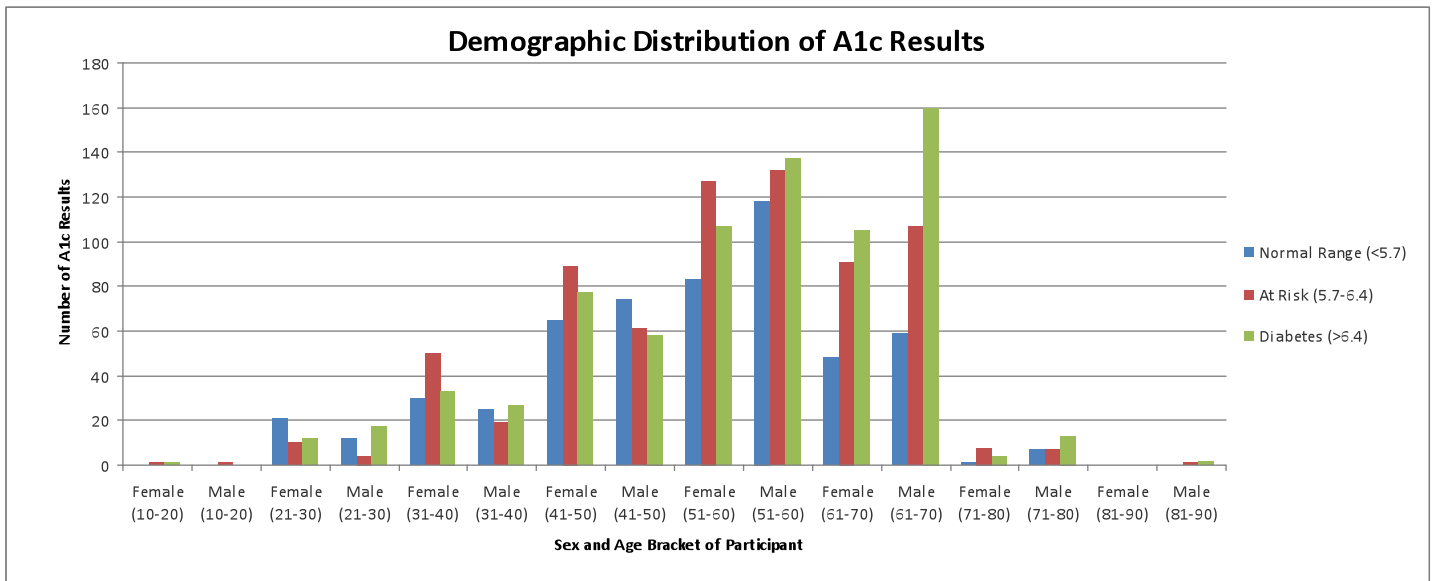


Chart 2: Percentage Distribution of Results

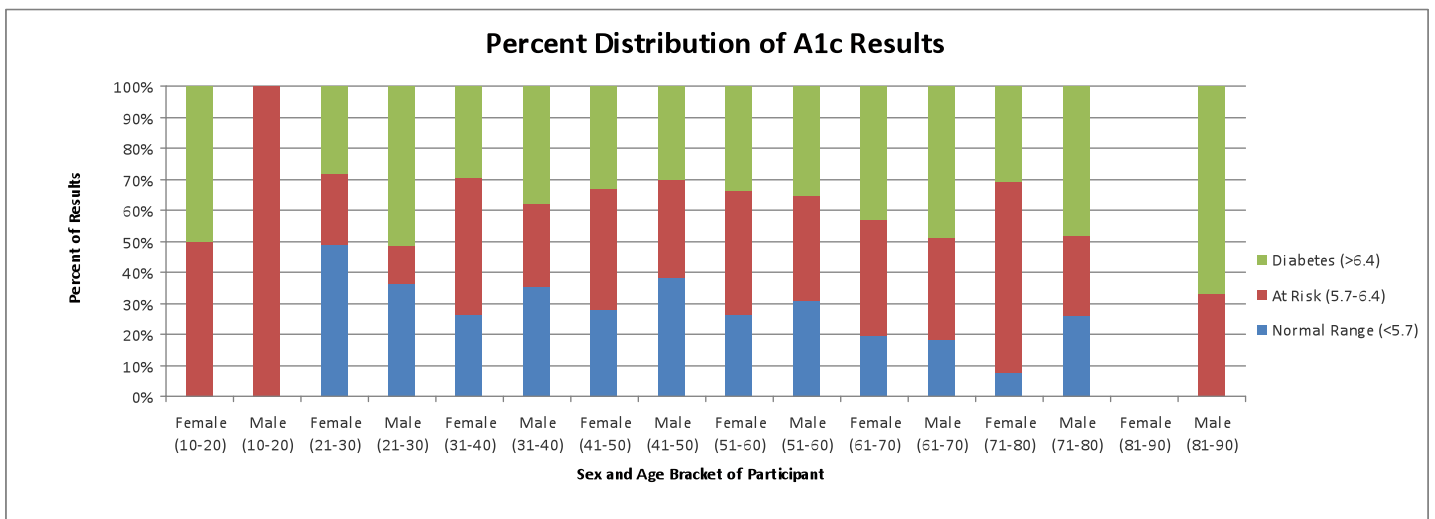


Chart 3: Results by Top 10 Highest Risk Demographic Categories (State, Sex, and Age)

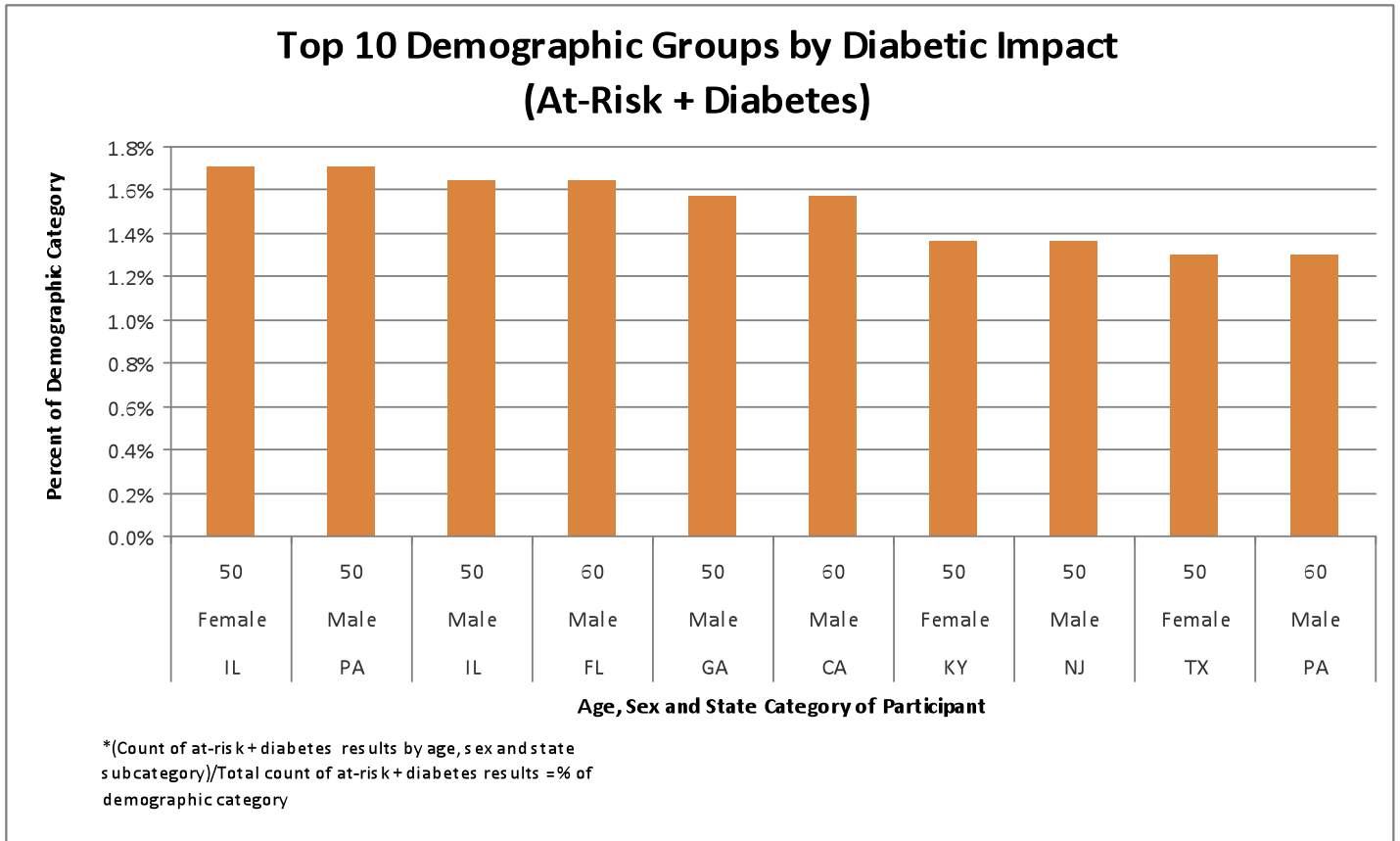




Table 4: Results by State and Gender (All-Sorted by highest total diabetic percentage):

State	Normal Results	At Risk	Diabetic	Male Normal	Male at Risk	Male Diabetic	Female Normal	Female At Risk	Female Diabetic
DE	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
SD	22.2%	11.1%	66.7%	0.0%	0.0%	66.7%	22.2%	11.1%	0.0%
MN	20.0%	24.0%	56.0%	4.0%	16.0%	44.0%	16.0%	8.0%	12.0%
NM	27.3%	18.2%	54.5%	9.1%	9.1%	27.3%	18.2%	9.1%	27.3%
WA	19.2%	26.9%	53.8%	11.5%	11.5%	34.6%	7.7%	15.4%	19.2%
TX	20.0%	29.6%	50.4%	12.2%	15.7%	29.6%	7.8%	13.9%	20.9%
OR	25.0%	25.0%	50.0%	0.0%	0.0%	25.0%	25.0%	25.0%	25.0%
VT	25.0%	25.0%	50.0%	0.0%	25.0%	0.0%	25.0%	0.0%	50.0%
WY	20.0%	30.0%	50.0%	0.0%	20.0%	50.0%	20.0%	10.0%	0.0%
VA	32.7%	20.4%	46.9%	22.4%	8.2%	22.4%	10.2%	12.2%	24.5%
WI	30.8%	23.1%	46.2%	23.1%	15.4%	23.1%	7.7%	7.7%	23.1%
LA	9.1%	45.5%	45.5%	0.0%	18.2%	27.3%	9.1%	27.3%	18.2%
PA	27.6%	27.6%	44.7%	17.1%	14.5%	23.0%	10.5%	13.2%	21.7%
NC	23.0%	32.8%	44.3%	11.5%	14.8%	23.0%	11.5%	18.0%	21.3%
CA	21.1%	35.2%	43.8%	10.9%	17.2%	23.4%	10.2%	18.0%	20.3%
MI	27.1%	30.5%	42.4%	18.6%	5.1%	13.6%	8.5%	25.4%	28.8%
TN	19.1%	40.4%	40.4%	6.4%	17.0%	23.4%	12.8%	23.4%	17.0%
MT	20.0%	40.0%	40.0%	20.0%	20.0%	20.0%	0.0%	20.0%	20.0%
NH	20.0%	40.0%	40.0%	20.0%	10.0%	20.0%	0.0%	30.0%	20.0%
SC	20.9%	39.5%	39.5%	14.0%	20.9%	11.6%	7.0%	18.6%	27.9%
IN	30.8%	30.8%	38.5%	16.9%	12.3%	16.9%	13.8%	18.5%	21.5%
MS	31.6%	31.6%	36.8%	10.5%	10.5%	15.8%	21.1%	21.1%	21.1%
IL	24.1%	39.4%	36.5%	12.4%	19.0%	21.2%	11.7%	20.4%	15.3%
KY	36.1%	29.3%	34.7%	18.4%	12.9%	16.3%	17.7%	16.3%	18.4%
OH	31.0%	34.5%	34.5%	11.5%	14.2%	22.1%	19.5%	20.4%	12.4%
AL	23.8%	42.9%	33.3%	9.5%	14.3%	19.0%	14.3%	28.6%	14.3%
CT	0.0%	66.7%	33.3%	0.0%	50.0%	16.7%	0.0%	16.7%	16.7%
MA	25.0%	41.7%	33.3%	16.7%	16.7%	33.3%	8.3%	25.0%	0.0%
ME	0.0%	66.7%	33.3%	0.0%	33.3%	0.0%	0.0%	33.3%	33.3%
NJ	24.8%	41.9%	33.3%	13.3%	21.9%	21.9%	11.4%	20.0%	11.4%
WV	33.3%	33.3%	33.3%	16.7%	0.0%	0.0%	16.7%	33.3%	33.3%
NY	22.4%	44.8%	32.8%	14.9%	23.9%	25.4%	7.5%	20.9%	7.5%
AZ	23.5%	44.1%	32.4%	11.8%	20.6%	17.6%	11.8%	23.5%	14.7%
MO	42.1%	26.3%	31.6%	15.8%	10.5%	18.4%	26.3%	15.8%	13.2%
FL	36.0%	33.6%	30.4%	24.0%	16.0%	19.2%	12.0%	17.6%	11.2%
ND	10.0%	60.0%	30.0%	10.0%	30.0%	20.0%	0.0%	30.0%	10.0%
GA	26.9%	43.5%	29.6%	15.7%	22.2%	18.5%	11.1%	21.3%	11.1%
CO	35.3%	35.3%	29.4%	20.6%	11.8%	17.6%	14.7%	23.5%	11.8%
MD	22.6%	48.4%	29.0%	19.4%	38.7%	6.5%	3.2%	9.7%	22.6%
UT	40.0%	32.0%	28.0%	24.0%	16.0%	12.0%	16.0%	16.0%	16.0%
NV	27.3%	45.5%	27.3%	9.1%	9.1%	9.1%	18.2%	36.4%	18.2%
IA	26.7%	46.7%	26.7%	16.7%	23.3%	10.0%	10.0%	23.3%	16.7%
NE	37.5%	37.5%	25.0%	37.5%	12.5%	0.0%	0.0%	25.0%	25.0%
OK	36.4%	40.9%	22.7%	9.1%	18.2%	18.2%	27.3%	22.7%	4.5%
AR	20.0%	60.0%	20.0%	20.0%	30.0%	10.0%	0.0%	30.0%	10.0%
AK	0.0%	83.3%	16.7%	0.0%	16.7%	0.0%	0.0%	66.7%	16.7%
KS	22.2%	66.7%	11.1%	11.1%	44.4%	0.0%	11.1%	22.2%	11.1%
DC	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
HI	0.0%	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%
ID	55.6%	44.4%	0.0%	22.2%	11.1%	0.0%	33.3%	33.3%	0.0%