

# Bridging the [Health Equity] Gap at a Free Clinic for Uninsured Residents of Rhode Island

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## ABSTRACT

Poor management of chronic diseases, such as hypertension and diabetes, particularly among the uninsured, places medical and financial burdens on the healthcare system. Clínica Esperanza/Hope Clinic initiated a chronic disease management program for uninsured residents of Rhode Island (RI) called Bridging the [Health Equity] Gap (BTG), which offers continuity of care, quarterly goal-setting appointments, and healthy lifestyle interventions. Outcomes for 549 participants from the initial evaluation period are presented here. Over the first 12 months of enrollment, mean hemoglobin A1c decreased from 10.2% to 8.3% ( $p < 0.001$ ), and mean blood glucose of individuals with diabetes decreased by 51 mg/dL ( $p < 0.01$ ). BTG participants used the local emergency department (ED) 60% less than Medicaid-insured RI residents and had 61% fewer “potentially preventable” ED visits. The positive impact of BTG on chronic disease outcomes and ED usage by uninsured patients suggests that programs like BTG may reduce overall healthcare costs in the state.

**KEYWORDS:** uninsured, health disparities, lifestyle intervention, chronic disease, emergency department

## INTRODUCTION

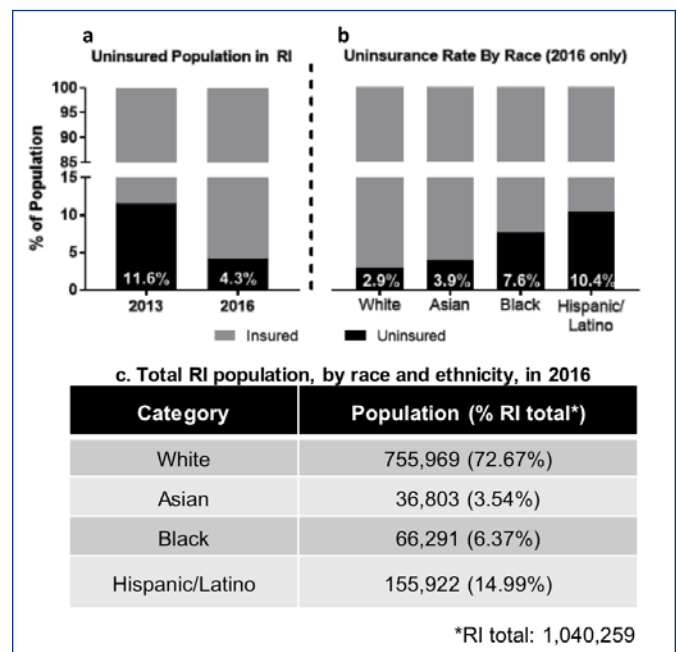
The overall rate of uninsurance in Rhode Island (RI) has dropped from 11.6% in 2013 (prior to Affordable Care Act implementation) to 4.3% in 2016 (Figure 1a).<sup>1</sup> However, at nearly 11%, the uninsured rate for Hispanic/Latino residents, remains more than three times that of white Rhode Islanders (Figure 1b-c).<sup>2</sup>

Limiting access to healthcare due to insurance status reduces access to preventive health screenings, leading to under-diagnosis of chronic diseases.<sup>3</sup> This increases the likelihood of poor health outcomes, increasing the cost of care should these individuals eventually obtain insurance. Furthermore, without access to primary care services, uninsured individuals are more likely to use the emergency department for non-emergent needs, generating significant financial burden for both the patient<sup>4</sup> and the healthcare system.

In 2016, Clínica Esperanza/Hope Clinic (CEHC),<sup>5,6</sup> a volunteer-run free clinic in Providence, RI, that serves a

**Figure 1: Uninsurance is highest among Hispanics in Rhode Island.**

**1a:** The percentage of the Rhode Island population that was uninsured dropped from 11.6% in 2013 to 4.3% in 2016. **1b:** The uninsured rate was highest, proportionally, among RI Hispanic/Latinos in 2016. **1c:** Rhode Island population, by race and ethnicity in 2016. Assumption made that categories are not overlapping (Source: United States Census Bureau<sup>1</sup>).



predominantly Hispanic population, initiated the “Bridging the [Health Equity] Gap” (BTG) program. BTG is a chronic disease management program that provides continuity of care and convenient access to non-emergent walk-in care for uninsured Hispanics living on the West and South sides of Providence, RI. The purpose of this study was to evaluate the clinical and fiscal impact of these services (if participants become Medicaid-eligible). We hypothesized that engaging uninsured participants in BTG would improve clinical indicators and provide significant cost-savings to the state.

## METHODS

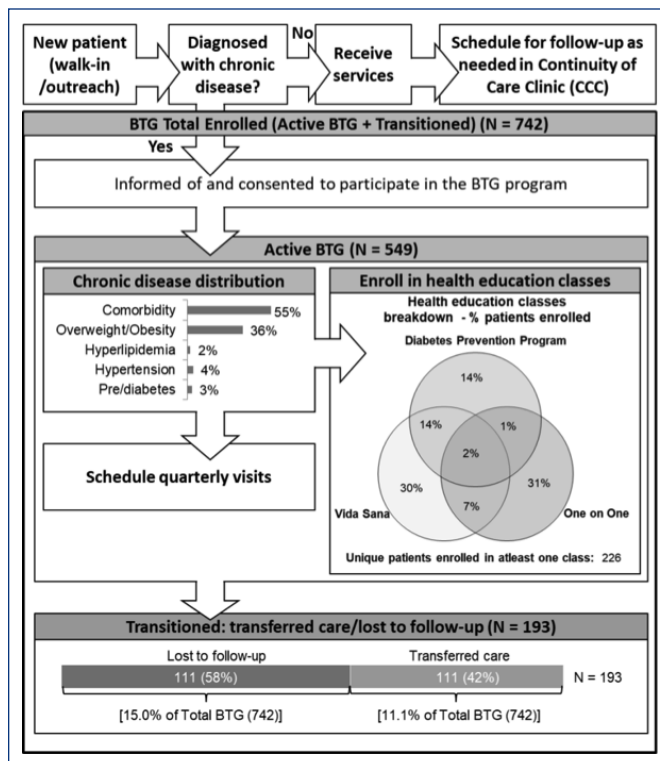
Participation in BTG was open to all uninsured, non-Medicaid-eligible people residing in RI, who are living with pre-diabetes, type 2 diabetes, hypertension, hyperlipidemia,

and/or obesity. Participation was voluntary and involved quarterly clinic visits and semi-annual health education classes. Participants signed a partnership form that gave CEHC permission to track progress throughout their health-care journey, whether they remained at CEHC or gained insurance coverage and transferred care to another clinic. This allowed for documentation of the impact of free health-care on patient wellbeing longitudinally.

Participants were recruited at CEHC and through outreach events in local churches and community centers. After enrollment, participants selected from several healthy-lifestyle change programs: the Vida Sana Program<sup>7</sup>

**Figure 2. Enrollment and participation in the Bridging the Gap program at CEHC, 2016-2017.**

This figure provides first-year data on all patients enrolled within the first 18 months (March 2016 – August 2017) of the BTG program (N=742; enrollment was continuous). Of these, 549 patients are considered active participants. Nearly half (n=226) of these active BTG participants have participated in a CEHC-based health education class. This enrollment is described in the Venn diagram on the right; note that many participants enroll in more than one health coaching class during their first year. Enrollment is available to all uninsured patients with chronic diseases who may be identified at outreach events or in the walk-in clinic. Patients may transition out of BTG when they: (1) become unreachable (and are lost to follow-up), (2) transfer care to another provider with or without insurance. Of the total enrolled (N=742), <12% of patients transferred care to another provider and 15% were lost to follow-up.



(a culturally-sensitive lifestyle change program developed by CEHC), the Diabetes Prevention Program (DPP, CDC<sup>8</sup>), or one-on-one health education visits with Community Health Workers (CHWs) (Figure 2). Furthermore, while participants could continue to access low- or no-cost ED care through a local hospital system (Lifespan; Providence, RI) using free “charity” care, CEHC clinicians and CHWs educated about, and reinforced use of, CEHC’s free walk-in “CHEER” clinic for non-urgent medical needs.

Changes in chronic disease indicators were collected from March 2016 to September 2017 and tracked in Microsoft Excel. Indicators included blood pressure, random blood glucose, body mass index (BMI), hemoglobin A1c (HbA1c), and total cholesterol levels. Vital signs and HbA1c were measured at CEHC; cholesterol was measured either at CEHC or at a Lifespan facility if the participant was enrolled in free care.

## RESULTS

### Chronic Disease Metrics

During the evaluation period, 742 individuals enrolled in BTG. Of these, 549 remained active participants at CEHC (i.e., did not transfer to a traditional health insurance plan or were not lost to follow up). During the first year of enrollment, 166 individuals (30%) participated in the program per-protocol, i.e. had at least one clinic visit per six months and enrolled in at least one health education program. Among per-protocol participants, at least 52% and as many as 77% showed improvement in at least one clinical indicator (Figure 3a).

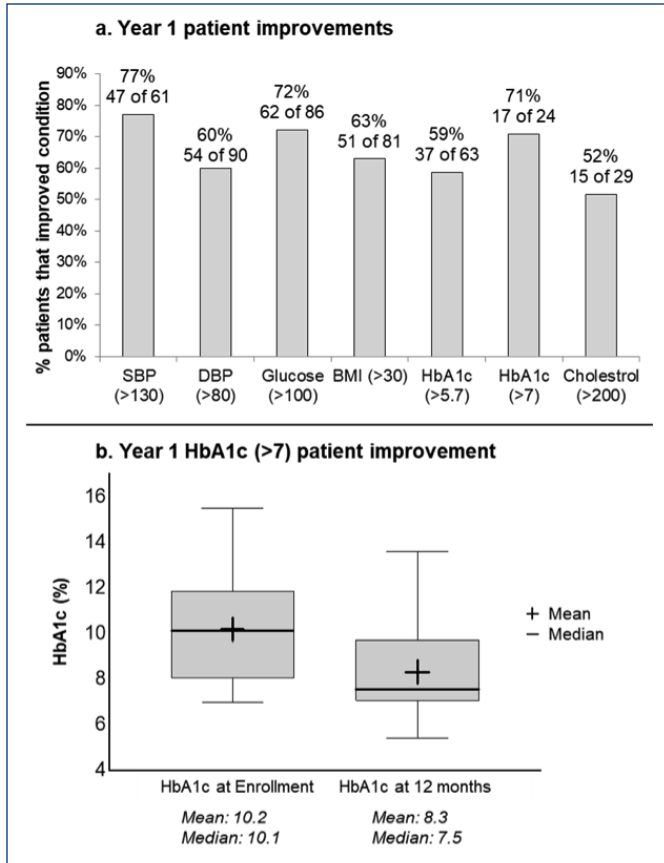
For participants with hypertension (i.e., systolic blood pressure (SBP) of at least 130mmHg or diastolic blood pressure of at least 90mmHg<sup>9</sup>, n=61), there was a mean decrease of 11 mmHg in systolic blood pressure (SBP) from participants’ first to last visit (p<0.001). Two thresholds for HbA1c (5.7% and 7%) were used to capture all individuals with pre-diabetes and diabetes, and to separately track those who had diabetes. Patients with diabetes showed improvements over the first 12 months of enrollment: HbA1C and blood glucose measurements decreased by mean values of 1.86 (n=24, Figure 3b) and 50.76 units (n=46), respectively (p<0.01). More than half of individuals had reduction in BMI (i.e., weight loss), though effect size varied widely.

### Impact of BTG on ED usage

We identified “potentially-preventable” ED visits of BTG participants for whom data were available (n=325) and compared this to the number of ED visits of Medicaid participants in RI (n=332,846) in 2016.<sup>10</sup> Overall, BTG participants used the ED 60% less than their Medicaid counterparts, and had 61% fewer “potentially preventable” ED visits (Figure 4).

**Figure 3. Participation in BTG Improved Health Status Indicators.**

**3a:** BTG participants experience improvements in chronic disease indicators. All improvements (over baseline) are captured in this figure. **3b:** Improvements in HbA1c for diabetic individuals (HbA1c >7). Patients that had definitively been identified as having diabetes experienced significant reductions in their HbA1c over the 12-month period (p<0.01).



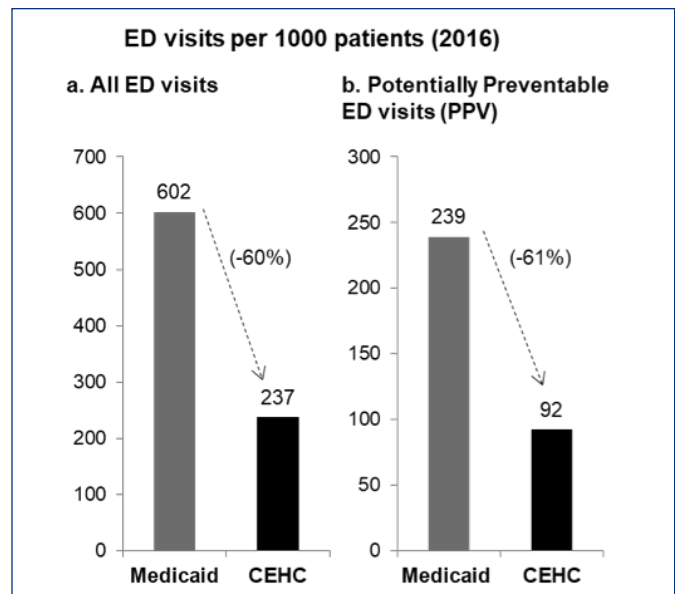
**DISCUSSION: COST SAVINGS OF BTG**

Longitudinally, cost-savings for BTG patients were high. For example, the cost-savings gained by controlling blood sugar, normalizing HbA1C, and reducing blood pressure to normal levels in participants with comorbid diabetes and hypertension was estimated to be between \$1445 and \$2073 per patient.<sup>11</sup>

“Potentially preventable” ED visits were also important to evaluate: a decrease in these visits due to BTG-style chronic disease management programs can confer financial benefits to the state. Since access to Medicaid under the Affordable Care Act shifts healthcare costs to the state and federal governments, the goal of this sub-analysis was to understand potential cost-savings (associated with reduced ED usage) under the assumption that if BTG were implemented statewide, ED visits by the uninsured Hispanic/Latino population would be lower. Studies have shown that Medicaid access increases ED visits (including those for non-emergent or primary care-treatable situations) of previously uninsured

**Figure 4. CEHC BTG Participants Used the ED less than Medicaid patients in 2016.**

**4a:** BTG participants were less likely to visit the ED for any reason. Despite having full access to the ED in the local hospital network through ‘charity (free) care’, BTG participants use the ED 60% less often than their Medicaid counterparts. **4b:** BTG participants were less likely to visit the ED for potentially preventable ED visits (PPVs). BTG participants used the ED 61% less often than Medicaid patients for potentially preventable reasons such as abdominal pain, headache, and asthma. *Note:* Medicaid population (n=332,846) and CEHC BTG population (n=325; includes only participants that had emergency room data available through the Lifespan hospital system, which is where CEHC patients have access to free care) denominators were used to calculate ED visits per 1000 patients. Potentially preventable visits are classified based on RI Executive Office of Health and Human Services (EOHHS) ICD-10 definitions. Current limitations of Medicaid claims data availability meant that we could not generate a comparison group that was age-, gender-, ethnicity-, and location-matched with the CEHC BTG cohort. (Source: Executive Office of Health and Human Services<sup>10</sup>).



patients.<sup>12</sup> In RI, the Department of Health has reported that 70% of the ED visits for individuals with Medicaid were potentially preventable.<sup>13</sup> Our data suggest that BTG patients may be much less likely to utilize EDs unnecessarily compared to Medicaid patients

We estimated the monetary benefits based on what we believe is a representative sample of the population that is seen at CEHC: uninsured Hispanics aged 18 to 64 years in RI. According to the 2016 American Community Survey, there were 8,311 nonelderly Hispanic non-citizens in Providence County.<sup>14</sup> Among uninsured Hispanic non-citizens in the Northeast, 16.5% reported using the ED in the past year. Assuming average ED use and costs in RI align with that of the Northeast and the rest of the US (approximately 1.8 visits per person and \$422/visit, respectively),<sup>15</sup> we estimated

that the total number of ED visits for the uninsured Hispanic population in Providence County to be as many as 2,468 visits annually. Assuming that 75% of ED visits are preventable,<sup>14</sup> BTG could prevent 1,851 out of 2,468 visits. This reduction in ED burden would yield an average potential savings to the RI healthcare system of \$781,122 annually.

## CONCLUSION

In RI, prevalence of being uninsured, having no primary care provider, experiencing cost barriers to seeing a doctor, and having had no “checkup” in the past 12 months are highest among Hispanic adults as compared to other racial/ethnic groups.<sup>16</sup> At CEHC, we have tracked and documented healthcare utilization, quality of care, and the impact of our programs on patient well-being over time.<sup>17,18,19</sup> In the present study, we hypothesized that engaging uninsured participants in a chronic disease management program (BTG) could promote health and financial benefits.

This initial analysis followed 549 per-protocol participants through their first year of enrollment in the program. We demonstrated that participation in BTG appears to improve relevant clinical indicators for participants with (or at risk for) diabetes, hypertension, hyperlipidemia, and obesity, and significant improvement is seen with SBP, HbA1c and glucose levels. Furthermore, BTG has the potential to reduce total and preventable ED visits. These ED usage estimates may be conservative, as only the subset of BTG participants accessing one specific hospital system was included in the analysis.

We acknowledge that, given that participants were not randomized, and that participation was voluntary, we were unable to perform an intent-to-treat analysis. Furthermore, there could be selection bias in that those who chose to participate in BTG per-protocol are likely more motivated to improve their own health. We also note here that the BTG cohort differs substantially from the general RI Medicaid population: by definition, 100% of BTG participants are diagnosed with a chronic disease, and nearly all identify as non-white Hispanics or Latinos. This difference may therefore significantly underestimate the impact of BTG. To obtain an unbiased evaluation of the impact of BTG on ED diversion, we will obtain local ED usage/cost data and ZIP code-associated Medicaid information for further analysis. We will report longitudinal results of BTG on the wellbeing of more than 1,500 participants (to-date) in the near future.

Considering that a significant fraction of the Hispanic community in RI does not appear to have equal access to health insurance, and that “health equity” is a key objective for the state, it is important to identify means by which access to care for this population can be improved. This study suggests that BTG-style interventions for uninsured Hispanic participants may improve patient well-being while lowering ED usage for preventable health problems and saving healthcare costs.

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## References

1. Barnett, JC, Berchick, ER. Health Insurance Coverage in the United States: 2016. Current Population Reports. United States Census Bureau. 2017; P60:260
2. US Census Bureau. Selected Characteristics of Health Insurance Coverage in the United States (1 year estimate). 2016 Retrieved from: <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>
3. Foutz J., Squires, E., Garfield R., Damico, A., The Uninsured: A Primer - Key Facts about Health Insurance and the Uninsured Under the Affordable Care Act. The Henry J. Kaiser Family Foundation. 2017. Retrieved from: <https://www.kff.org/report-section/the-uninsured-a-primer-key-facts-about-health-insurance-and-the-uninsured-under-the-affordable-care-act-how-does-lack-of-insurance-affect-access-to-health-care/>
4. McKenna RM, Langellier BA., Alcalá HE, Roby DH, Grande, DT, Ortega, AN. The Affordable Care Act Attenuates Financial Strain According to Poverty Level. *Inquiry*. 2018; 55
5. Gerber R, Charpentier M, Tecun S, Massi M, Diaz J, De Groot AS. Place to be healthy: blueprint for a new free clinic for the medically uninsured of Rhode Island. *Med Health R I*. 2008;91(4):105-8.
6. Khan S, Velazquez V, O'Connor C, Simon RE, De Groot AS. Health care access, utilization, and needs in a predominantly Latino immigrant community in Providence, Rhode Island. *Med Health R I*. 2011;94(10):284-7.
7. Buckley J, Yekta S, Joseph V, Johnson H, Oliverio S, De Groot AS. Vida Sana: a lifestyle intervention for uninsured, predominantly Spanish-speaking immigrants improves metabolic syndrome indicators. *J Community Health*. 2015;40(1):116-23.
8. Kramer MK, Miller RG, Siminerio LM. Evaluation of a community Diabetes Prevention Program delivered by diabetes educators in the United States: one-year follow up. *Diabetes Res Clin Pract*. 2014;106(3):e49-52.
9. Whelton PK, Carey RM, Aronow WS, Casey DE Jr, Collins KJ, Dennison Himmelfarb C, et al. 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *J Am Coll Cardiol*. 2018;71(19):e127–e248.
10. Executive Office of Health and Human Services. Medicaid: total and potentially preventable ED visits (2016) [Data file]
11. Lafeuille MH, Grittner AM, Gravel J, Bailey RA, Martin S, Garber L, Sheng Duh M, Lefebvre P. Quality measure attainment in patients with type 2 diabetes mellitus. *Am J Manag Care*. 2014;20:s5–s15
12. Taubman SL, Allen HL, Wright BJ, Baicker K, Finkelstein AN. Medicaid Increases Emergency-Department Use: Evidence from Oregon's Health Insurance Experiment. *Science* (New York, NY). 2014;343(6168):263-268.
13. Potentially Preventable Emergency Room Visits. State of Rhode Island: Department of Health. 2015. Retrieved from [www.health.ri.gov/data/potentiallypreventableemergencyroomvisits/](http://www.health.ri.gov/data/potentiallypreventableemergencyroomvisits/).
14. American Community Survey. U.S. Census Data for Social, Economic, and Health Research 2016 (50-year data). Retrieved from: <https://usa.ipeds.org/usa/>



15. Agency for Healthcare Research and Quality. 2014-2015 Medical Expenditure Panel Survey (1-year estimate). Retrieved from: [https://meps.ahrq.gov/data\\_stats/download\\_data\\_files.jsp](https://meps.ahrq.gov/data_stats/download_data_files.jsp)
16. "Healthcare Access." State of Rhode Island: Department of Health, Retrieved from. [www.health.ri.gov/data/healthcareaccess](http://www.health.ri.gov/data/healthcareaccess)
17. Bicki A, Rogers R, Velasquez V, De Groot AS. Clínica Esperanza/Hope Clinic Clinical Outcomes Review: February–July 2011, Journal of Medicine and Health, RI, October, *Med Health RI*. 2011. 94(10): 288-9
18. Eldakrouy A, Olivera E, Martin R, De Groot AS. Adherence to American Diabetes Association guidelines in a volunteer-run free clinic for the uninsured: better than standards achieved by clinics for insured patients. *RI Med J* (2013). 2013 4;96(1):25-9.
19. Kibria F, Peters JL, Shulman C, Joseph V, De Groot AS. Assessment of hypertension guidelines adherence at a free clinic serving a predominantly Latino population in Providence, RI. *RI Med J* (2013). 2014 3;97(3):43-7.

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