

Emerging virtual care methods to improve access to behavioural health services within the ambulatory care setting

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Abstract Atrium Health launched a transformative integrative care delivery model, Behavioural Health Integration (BHI), utilising virtual and population health management tools to reach out to patients with behavioural health symptoms in primary care and pediatric practices. The goal of the collaborative care initiative is to improve access to behavioural health services and improve the patients' overall health. In 2016, BHI outcomes revealed that 49 per cent of patients saw a 50 per cent reduction in their depression scores, 38 per cent of patients saw a decrease in their anxiety screening scores and over 80 per cent of the programme participants with suicidal ideations at baseline denied suicidal ideations at the completion of the programme. This patient population also revealed a decrease by 0.4 points for HgBA1C levels, total cholesterol decreased by 11.5 points and low-density lipoprotein (LDL) cholesterol decreased by 11.7 points. The patient population demonstrated a 25 per cent reduction in avoidable inpatient visits and a 13 per cent reduction in avoidable emergency department visits. Through implementation of the BHI model, ambulatory care clinics and patients have immediate access to behavioural health services. Thus, assessment, planning and initiation of treatment can begin immediately, and follow-up care can be coordinated between the behavioural health team and medical providers all in one visit.

KEYWORDS: behavioural health, virtual care, collaborative care, depression screening

INTRODUCTION

In the United States, one in four adults suffers from a diagnosable mental health disorder.¹ Additionally, in the United States 29 per cent of adults with medical conditions also suffer from mental health conditions, and 68 per cent of adults with mental health conditions also have medical conditions.² Approximately 40,000³ Americans die by suicide each year; 50 per cent of those who die by suicide were afflicted with major depression, and the suicide rate of people diagnosed with major depressive disorders is eight times that of the general population.⁴ It has been estimated that approximately 70 per cent of primary care visits are psychosocially related, two-thirds of primary care providers report that they have limited resources to refer patients for adequate behavioural health (BH) treatment, and 50 per cent of those referred to BH do not make their appointments. For those Americans affected by mental illness, only 5 per cent see a mental health professional. The remaining 95 per cent receive treatment from a primary care physician.⁵ As primary care providers

continue to observe an increase in BH visits and face ongoing challenges regarding BH support, 77 per cent of individuals who die by suicide had visited their primary care provider within the previous year and 45 per cent had visited their primary care provider within the previous month.⁶ In the United States, several issues still persist. Millions of Americans still lack access to evidence-based care and BH professionals following discharge from emergency departments (EDs) and inpatient settings. Only 50 per cent of patients referred to care following discharge actually receive outpatient treatment, and there are too many missed opportunities to effectively treat at the primary care level.⁷ BH continues to be seen as a social problem rather than a public health issue.

BH care clinical capacity is inadequate to serve the national need. Half of all the counties in the United States do not have a single practising mental health professional.⁸ In 2013, it was estimated that 70 per cent of all active psychiatrists were 50 years old or older, and the healthcare system's capacity to deliver mental health services has been

shrinking since 1995.⁹ In North Carolina, 28 counties do not have a practising psychiatrist, and 18 counties have only one practising psychiatrist.¹⁰ Psychiatrist supply, reimbursement barriers and inefficient workflow limit patient access and treatment efficacy. Anxiety, depression, opioid addiction and other BH conditions continue to affect communities and the country more widely. Mental health disorders tax the joy of living and increase medical costs. No other condition is currently costing society more while being treated less.

Atrium Health has developed a programme to provide virtual BH services to bring BH to the forefront for many providers within primary care and provide real time support to their patients. To accomplish this, Behavioural Health Integration (BHI) implemented evidence-based treatment algorithms and seamlessly coordinated care that meets patients' and providers' needs by increasing the detection of mental illness through appropriate screening. This approach increases access to BH coaching, provides treatment and medication oversight and improves clinical outcomes, all while strengthening relationships between patients and their primary care providers in an effort to decrease avoidable healthcare utilisation and achieve higher rates of treatment adherence to decrease the overall cost of care over time.

VIRTUAL BEHAVIOURAL HEALTH INTEGRATION

In 2013, the Behavioral Health Service Line within Atrium Health was tasked with designing an innovative and sustainable model of integrated BH care to improve the lives of members of our community at the primary care level. Behavioral Health Integration launched a model of integrative services in March 2014 that stepped away from the traditional model of specialist co-location to a unique and transformative virtual model within primary care. Working in collaboration with system physician leadership, adult and

paediatric mental health screening tools were identified, and standardised screening processes were incorporated into the model. Through implementation of the virtual model, paediatric practices and primary care clinics have immediate access to BH services via video technology and other resources. As a result, assessment and treatment planning can begin immediately, and follow-up care can be coordinated between the BH team and medical providers all in one visit. This collaborative care model is designed to eliminate barriers to timely access, optimise provider skills, leverage resources across a broad geography and decrease the overall cost of care.

The concepts of integrated behavioural or mental telehealth services are not new. The Atrium Health programme combined these treatment approaches to address the shortage of mental health professionals and psychiatry in North Carolina and the United States, targeting the setting where many patients with BH issues are found: primary care and pediatric clinics. This programme is among the first of its kind in North Carolina and utilises virtual care teams partnered with providers in primary care to address gaps in services and treatment. Atrium Health's model of BHI focuses on reducing the stigma and burden of mental illness through education, early detection and timely, cost-effective and evidence-based treatment, while embracing and supporting the relationship between the patient and the primary care provider.

The collaborative care model improves the overall delivery of mental health treatment within Atrium Health and across North Carolina. Improvements in the delivery of care have positively impacted patients, family members, primary care providers and team members. Using the IMPACT (Improving Mood — Providing Access to Collaborative Treatment) model, also known as 'collaborative care', depression care more than doubles in the effectiveness of depression treatment for older adults in primary care settings, and at 12 months, 45 per cent of patients receiving care reported at least a 50 per cent reduction

in depressive symptoms, compared with only 19 per cent of those in usual care.¹¹ The collaborative care model demonstrated a cost savings of US\$3,300 per patient within a four-year time frame.¹² Overall, studies show that collaborative care is more effective than standard care in improving depression outcomes in the short and longer terms.¹³ These advancements are aligned with the Atrium Health Patients First: Primary Care Initiative, which includes convenient access, value-laden encounter, customised coordinated care and reliable clinic care to achieve our mission to improve health, elevate hope and advance healing for all.

The programme is designed to also target patient experience as it promotes healing, enhances the patients' education and supports their enduring relationship with Atrium Health as they participate in Behavioral Health's improved system of collaborative care. BHI has allowed an increase in access to BH care, standardisation for screening BH symptoms using the Patient Health Questionnaire (PHQ-9), treatment of mental illness and ongoing follow-up to support patients and primary care providers.

The Patient Health Questionnaire is a nine-item field-tested depression screening tool that was developed in the mid-1990s and has been mostly validated in the primary care setting.¹⁴ The PHQ-9 offers clinicians a concise, self-administrated screening and diagnostic tool for depression. Care providers and ambulatory care managers partnered with BHI to screen all new patients, patients at annual visits and patients prescribed psychotropic medication in an attempt to identify new patients and/or establish a baseline of their depression. Utilisation of the tool continues once a patient is referred to and enrolled in the BHI programme. Ongoing screening assists in tracking overall depression severity, monitoring symptoms and identifying specific symptoms that are not responding to treatment.¹⁵ The PHQ-9 is now available for ambulatory use in the patient's electronic medical record

to encourage use of the screening tool, improving the diagnosis and management of depression. A 2013 National Institutes of Health study, titled 'PHQ-9 Use in Clinical Practice: Electronic Health Record Data at Essential Health', concludes that patients tested in primary care settings were more likely to have a diagnosis of depression and were substantially more likely to be prescribed an antidepressant drug.¹⁶

PROGRAMME DESIGN

The BHI team operates as a cross-functional team including psychiatrists, pharmacists, licensed clinical social workers/counsellors and certified BH coaches. BHI provides on-demand and referral services to evaluate, treat and monitor patients between primary care office visits, while preserving the patient's relationship with his/her primary care provider. Once the patient is engaged, team members directly interact with the patient via video technology during the office visit or telephonic outreach. A standardised outreach protocol was developed to complete medication safety checks within 96 hours, assess symptom severity through ongoing screenings and use SMART goal implementation to assist with improving the patient's mood. The psychiatrist is available to assist with medication recommendations, although the primary care provider makes the final treatment decisions.

Patients are referred to BHI following use of the PHQ-9 screening tool if the patient's score is ten or greater, indicating moderate depression, or if the primary care provider feels an intervention is necessary. Upon enrolment, a brief psychosocial assessment is completed by a licensed clinician, and treatment recommendations are communicated to the primary care provider. The patient is then enrolled in our health coaching programme to identify short-term goals, provide ongoing psycho-education, continue screening (PHQ-9) for symptom severity and

provide community resources to target BH symptoms. Weekly treatment team meetings are conducted to allow the psychiatrist time to review the patient's progress and provide ongoing treatment recommendations to the primary care provider to support the patient and work towards remission. All patient interventions and psychiatry consultations are documented in the patient's electronic medical record to coordinate care between BHI and the provider.

A team of psychiatrists and pharmacists who are board certified in psychiatry develops treatment algorithms to provide ongoing education and guidance to primary care providers regarding the utilisation of anti-depressants and psychotropic medication. The medication algorithm is embedded into the electronic medical record to allow the primary care provider immediate access to evidence-based treatment. The BHI providers are identified as consultants to the primary care providers to guide treatment, complete chart reviews and assist with titration schedules to reduce symptom severity.

The core team currently consists of the medical director (psychiatrist), two adolescent and child psychiatrists, one nurse practitioner who is board certified in psychiatry, the programme manager, programme coordinator, onboarding specialist, 14 licensed BH professionals (Licensed Clinical Social Worker/Licensed Professional Counselor) and 10.5 health coaches. The core team has demonstrated the potential to support 27 ambulatory clinics with 144 providers. The BHI programme has also partnered with Atrium Health Care Management to provide support to patients with chronic illness reporting BH symptoms. The virtual model has incorporated a call back protocol to provide ongoing support, education and treatment planning for patients enrolled with BHI services. BHI has the capacity to manage over 2,500 patients completing on average 8,500 patient interactions per month.

OUTCOMES

The programme evaluation framework chosen was a pre-post study design. The pre-post or before-after evaluation approach is common for measuring outcomes of system-wide interventions when it is not feasible or ethical to obtain a concurrent control group. BH symptoms (PHQ-9, GAD-7 and suicidal ideations) were compared at baseline and at different time frames following programme enrolment according to our telephonic outreach protocol. Clinical indicators were compared at baseline and 12 months after enrolment. Healthcare utilisation and charges were also compared for one year 'pre' and one year 'post' enrolment into BHI. The primary outcome measures were change in depression, anxiety and suicidal ideations. Secondary outcomes (clinical, cost, utilisation) were evaluated for the purpose of establishing sustainability and cost effectiveness for the hospital system.

PATIENT POPULATION

The BHI team has reached out to 16,744 unique patients and completed 158,305 patient interventions since the initiation of BHI in March 2014. In 2016, the majority of the BHI programme participants were female (70 per cent), Caucasian (74 per cent), privately insured (51 per cent) and active within primary care prior to enrolment with BHI (94 per cent). Close to 80 per cent of the patients were enrolled with elevated PHQ-9 scores, elevated GAD-7 (66 per cent) and/or suicidal ideations (35 per cent), and 80–90 per cent of the patients had been ordered at least one psychotropic medication before enrolment in BHI. Over 77 per cent of the programme participants had at least one chronic diagnosis, and 90 per cent had at least one chronic behaviour health diagnosis one year prior to enrolment. Compared with the rest of the Atrium Health population, BHI-enrolled patients had a higher prevalence of heart disease, hypertension, diabetes, rheumatoid arthritis, hyperlipidemia, chronic obstructive pulmonary

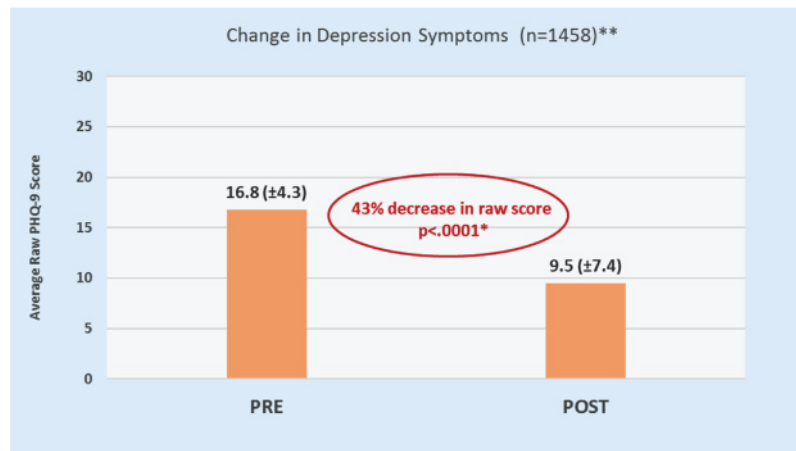
disease (COPD), anaemia and acquired hypothyroidism. Mood and anxiety disorders were the two most prevalent BH conditions, followed by addiction/chemical dependency. Although addiction was not prevalent as a standalone chronic condition, dual addiction plus mood/anxiety diagnoses was common in this population.

SYMPTOM IMPROVEMENT

BHI telephonic outreach and treatment planning achieved a 43 per cent decrease in the patient's PHQ-9 score and a 38 per cent decrease in anxiety symptom scores (GAD-7) (Figure 1). Close to 49 per cent of the patients achieved 50 per cent or greater reduction in their raw depression

Depression

Compares baseline and the latest reported PHQ-9 scores

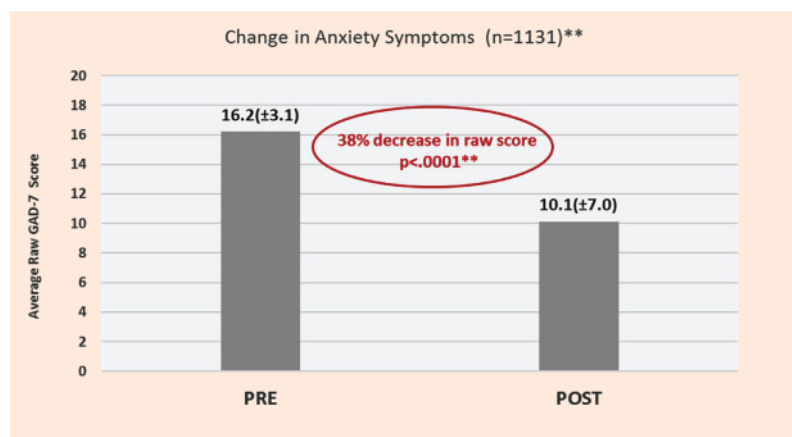


*p-value <.05 indicates statistically significant change within the same patients overtime (Pre-post analysis using paired t-test procedure)

** Patient who had at least 6 months follow-up, started out with elevated PHQ-9 score (≥ 10) and had at least 30 days between the first and last assessment

Anxiety

Compares baseline and the latest reported GAD-7 scores



*p-value <.05 indicates statistically significant change within the same patients overtime (Pre-post analysis using paired t-test procedure)

** Patient who had at least 6 months follow-up, started out with elevated GAD-7 score (≥ 10) and had at least 30 days between the first and last assessment

Figure 1: Symptom improvement

scores as a result of health coaching and BHI telephonic outreach. Over 80 per cent of the programme participants with suicide ideations at baseline were completely free of the symptoms at discharge following BHI health coaching. The decrease in depression

symptoms could be seen as early as 30 days following enrolment into the programme.

Compared with baseline, both weight and body mass index (BMI) have slightly increased after enrolment in BHI (Figure 2). The increase could be a function of

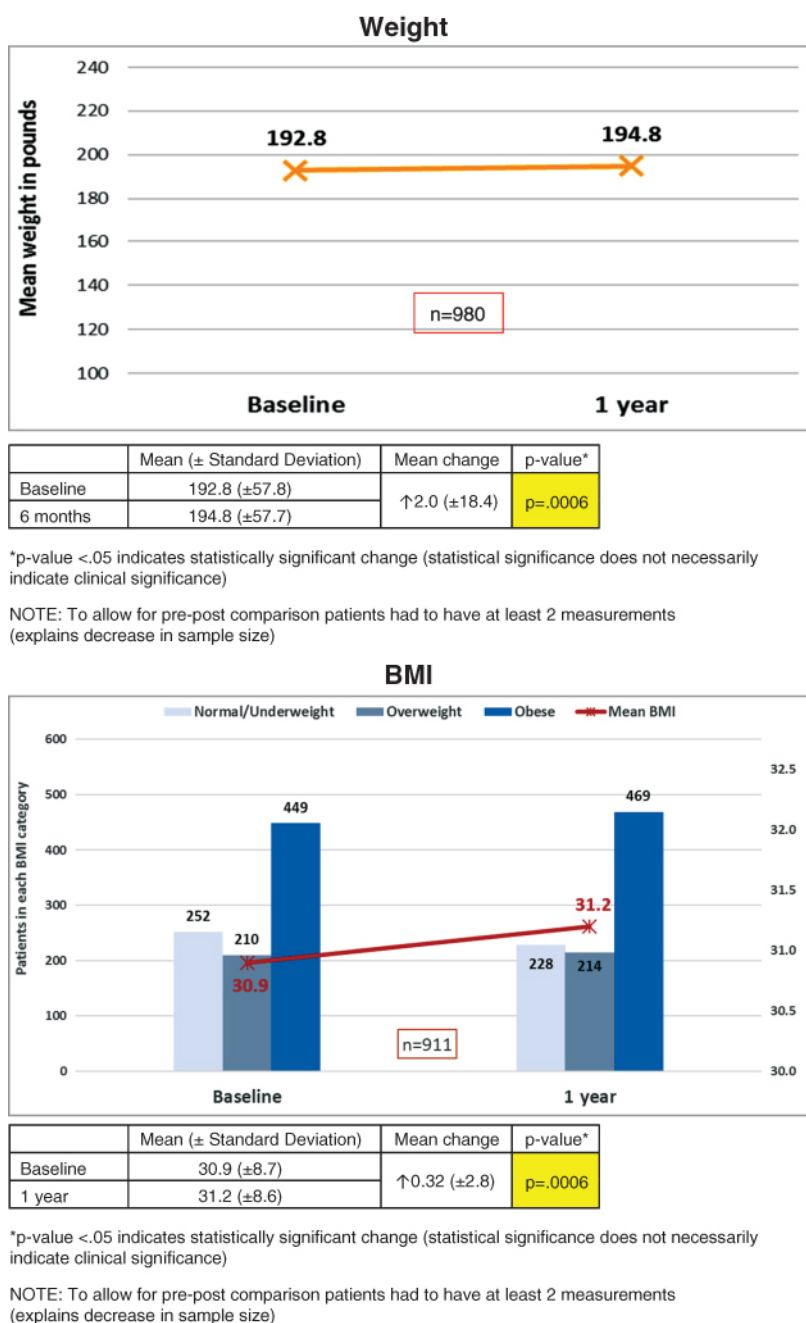


Figure 2: Clinical outcomes (weight and body mass index)

ageing, the predominance of female patients or the known cardio-metabolic side effects of psychotropic pharmacotherapy. The 2016 programme evaluation indicated that HgBA1C levels decreased by 0.4 points after enrolment in BHI. Significant decreases were also achieved in total cholesterol (which was down 11.5 points) and low-density

lipoprotein (LDL) cholesterol (which was down 11.7 points) (Figure 3).

SYSTEM INVESTMENT

The 2016 programme evaluation specified an increase in ambulatory visits by an average of 1.8 visits per person per year,

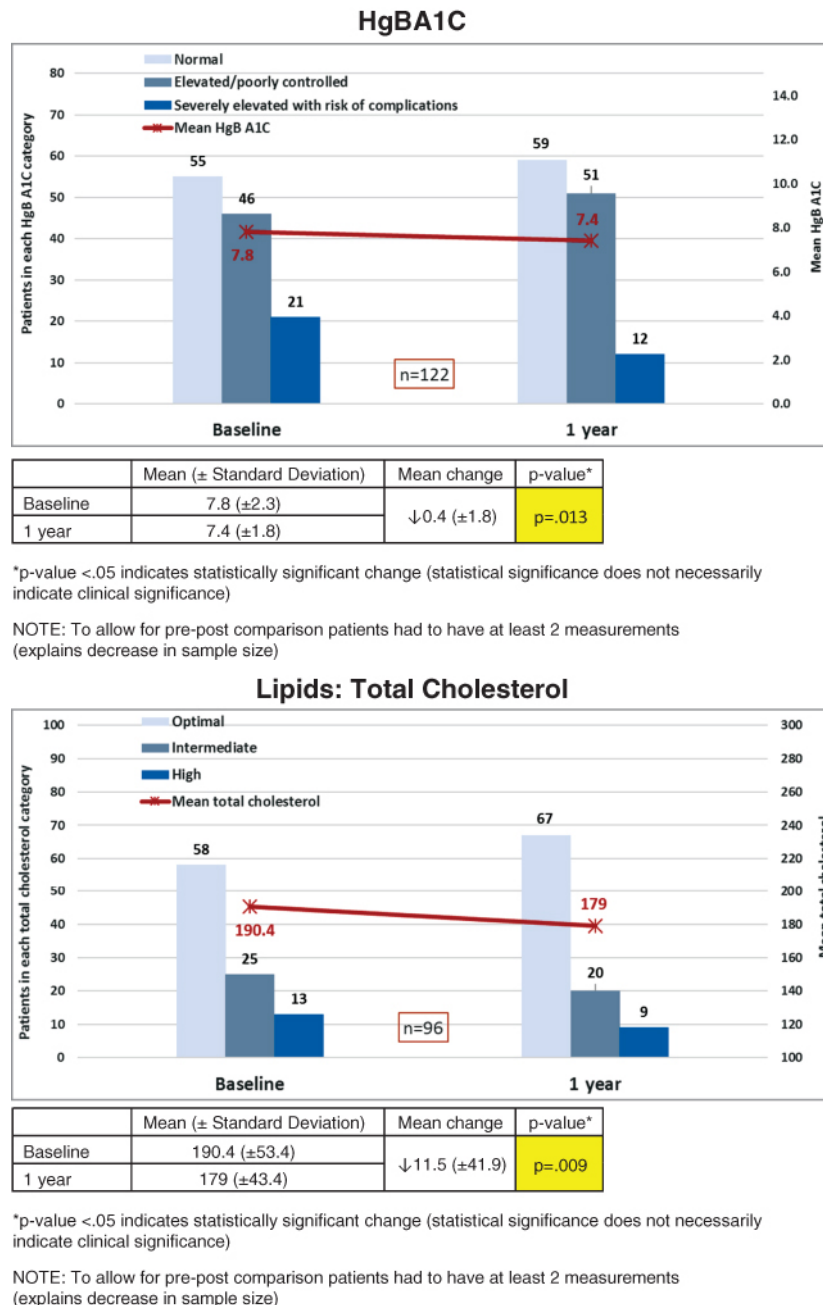
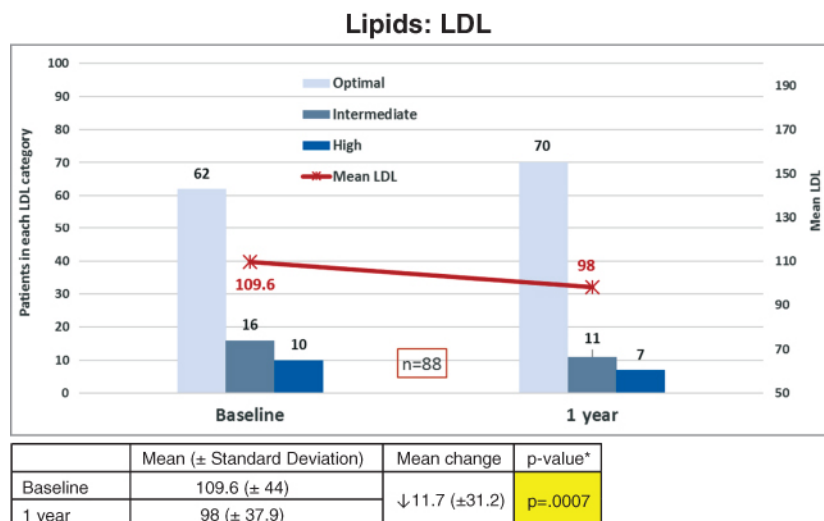


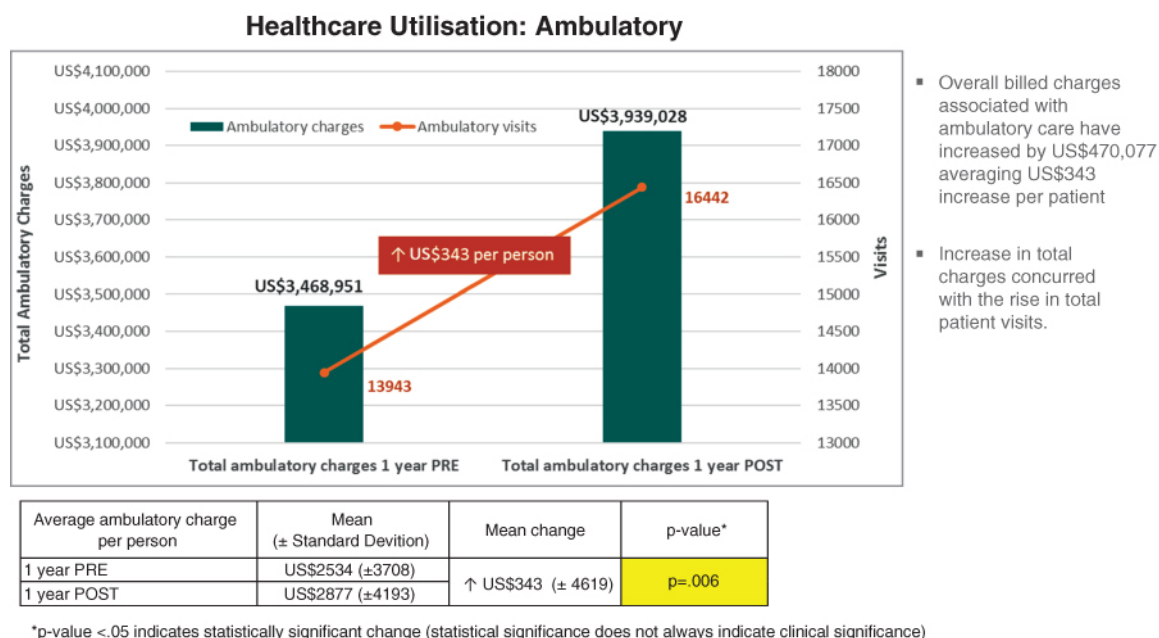
Figure 3: Clinical outcomes (HgBA1C levels, total cholesterol and LDL)



*p-value <.05 indicates statistically significant change (statistical significance does not necessarily indicate clinical significance)

NOTE: To allow for pre-post comparison patients had to have at least 2 measurements (explains decrease in sample size)

Figure 3: Clinical outcomes (*continued*) (HgbA1C levels, total cholesterol and LDL)



*p-value <.05 indicates statistically significant change (statistical significance does not always indicate clinical significance)

Figure 4: Healthcare utilisation (ambulatory care)

increasing annual per person billed charges by US\$343 (Figure 4). The increase was driven by more observed primary and BH visits. About 70 per cent of the total ambulatory billed charges were incurred

by high utilisers (patients with more than 14 visits) who were more likely to have multiple chronic BH and non-BH conditions. Interestingly, top utilisers (14 or more visits a year) of ambulatory

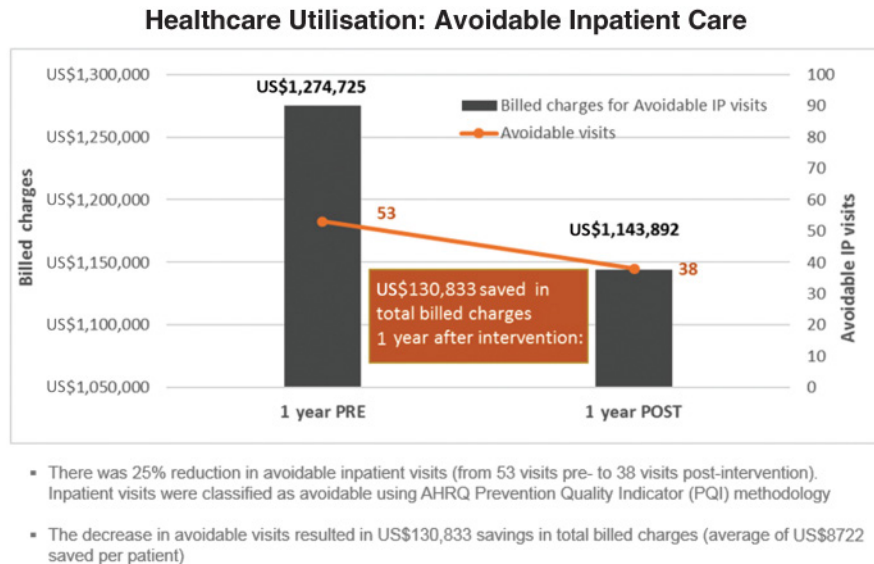


Figure 5: Healthcare utilisation (avoidable inpatient care)

care in the pre-intervention year achieved a significant decrease in ambulatory care utilisation in the post-intervention year. Decreases in ambulatory visits have translated to US\$537,410 savings in ambulatory billed charges (US\$1,717 per person) in the post-intervention year. The top utilisers have also shown a US\$4,580,912 decrease in total billed charges (US\$14,588 per person) in the post-intervention year.

Assessing the number of avoidable inpatient visits, Atrium Health has shown a decrease from 50 visits to 38 visits, resulting in total savings of US\$130,833 in billed charges (an average of US\$8722 per person) (Figure 5). The total number of ED visits has decreased by 8 per cent (109 fewer visits in the year after intervention), but the complexity of the ED visits probably increased as overall billed charges for the 'post' year have increased from 2015 to 2016. Nearly 10 per cent of the patients had three or more ED visits and were older with more chronic BH and non-BH conditions. The number of avoidable ED visits has, however, decreased by 13 per cent (125 fewer visits after BHI enrolment) with minimal impact on cost (Figure 6).

CONCLUSION

Historically, primary and BH care have been divided, including how providers assess, how medical care is coordinated and how services are billed.¹⁷ Atrium Health innovated, deployed and matured virtual BH services in response to the psychiatric crisis in our EDs, ambulatory care access barriers, collapsing community mental health resources and severely constrained system resources. Applicable for adult, paediatric, adolescent and geriatric patients, BHI focuses on service line optimisation as well as patient care in primary care and paediatric clinics. The virtual approach of Behavioral Health Integration has proven to lower treatment costs by 38 per cent or more when compared with in-person integration or traditional BH care delivery. Risk-bearing entities achieve measurable reductions in downstream medical care expenses such as reduced inappropriate ED encounters and acute care admissions. Embedding social workers and psychologists in practices, while proven effective, adds enormous cost and new management burden. The virtual BHI programme brings the positive benefits of

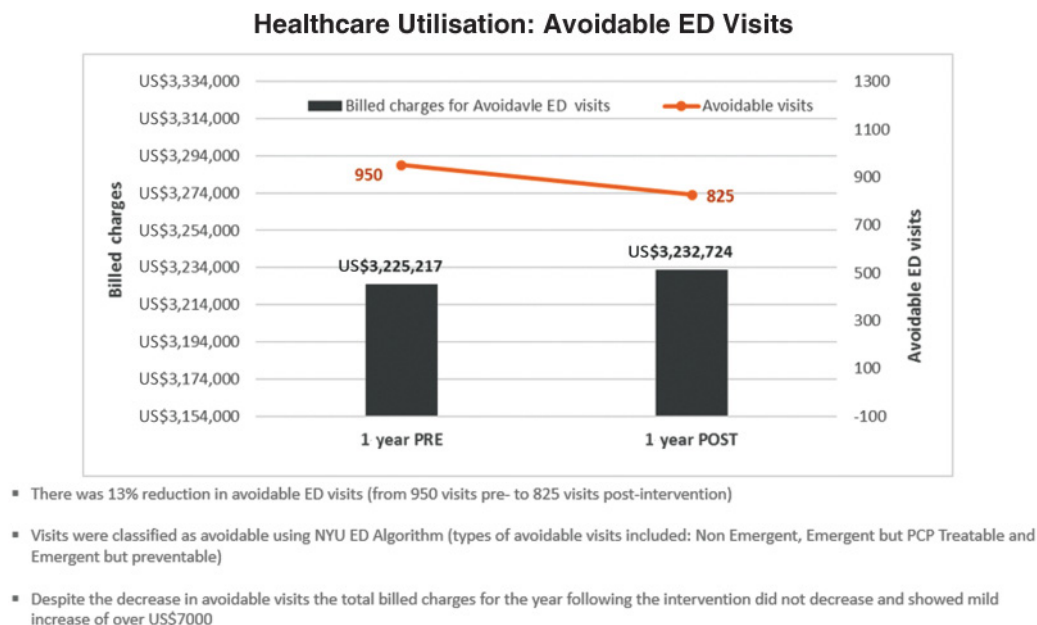


Figure 6: Healthcare utilisation (avoidable emergency department [ED] visits)

the IMPACT collaborative care model and also proves the efficiency and flexibility of a virtual model to reach more patients while utilising minimum resources.

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