Implementing a Mobile Text Messaging Reminder System to Increase Annual Wellness Visits in a Primary Care Clinic

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BACKGROUND

- Keeping well people well, reducing health risks, and managing chronic disease are key priorities in maintaining a healthy population (Nash et al., 2021).

- In the United States (U.S.), nearly 18% of the gross domestic product (GDP) is devoted to health care and is projected to reach 20% by 2025 (Centers for Medicare & Medicaid Services [CMS], 2022).

- Even though there is a high level of spending on healthcare costs the burden of disease in the U.S. population continues to increase with roughly 133 million Americans (45% of the U.S. population) suffering from at least one chronic condition and 25% of adults diagnosed with more than one (Raghupathi & Raghupathi, 2018) (Osborn et al., 2016)

- It is emphasized that true population health can be achieved only by placing an increased emphasis on health promotion and disease prevention, but yet only 8% of the US population received all the recommended preventative health services such as AWVs and screenings (Nash et al., 2021) (Borsky et al., 2018).

- The need to establish a healthcare system that focuses on a culture of wellness where individuals value their health and seek to optimize their well-being by taking an active role in preventative care services, such as wellness visits, is a growing essential need in the U.S (Nash et al., 2021)

PURPOSE AND HYPOTHESIS

Purpose
To increase the number of adult annual wellness visits (AWVs) with the goal of providing age-specific preventative healthcare recommendations as supported by Healthcare Effectiveness Data and Information Set (HEDIS) metrics and the United States Preventative Services Task Force (USPSTF) recommendations.

Hypothesis
Will the use of a patient appointment reminder system via mobile text messaging increase the percentage of patients scheduling and completing AWVs in a primary care clinic? The inquiry was formulated upon the population, intervention, comparison, and outcome method (PICO).

OBJECTIVES

Within the given timeframe, this project sought to achieve the following objectives:
1. Research, plan, implement, and evaluate the use of mobile text messaging reminder system to increase patient scheduling and completion of AWVs.
2. Administer an educational seminar for the medical staff to train on the importance of preventative care and project implementation of sending mobile text messages to increase the scheduling and completion of AWVs.
3. Create an educational tool to improve provider compliance to align with national standards for care pertaining to adult AWVs and preventative healthcare recommendations.
4. Increase the number of adult patients who schedule and complete AWVs by at least 5% during the 5-week implementation period.

METHODS

A quantitative methodology was used for this QI project

Direct Population of Interest
All providers at the primary care clinic agreed to participate. There was a total of 10 participants employed by the primary care clinic with 3 licensed as advanced practice mid-level providers, 4 certificate-prepared medical assistants, 1 certificate-prepared medical assistant who served as the Front Office Manager, one master's-prepared Practice Administrator, and 1 board-certified Doctor of Medicine (MD) who served as the clinic's Medical Director.

Indirect Population of Interest
All English-speaking established adult patients of the clinic (seen in the last 2 years) who had a cellular telephone number on file, who had consented to receive text messages from the clinic, and who had not completed an AWV in the last 12 months.

Setting
The project was implemented in a primary care clinic located in central Las Vegas, Nevada with a population of 2.8 million in the metropolitan area. This facility was an adult health primary care clinic owned by a local private University. This clinic employed three full-time nurse practitioners, four medical assistants who rotated as front office staff and patient care providers, one Front Office Manager, one Practice Administrator, and one Medical Director who was a board-certified MD. The clinic used twelve exam rooms and the electronic health record (EHR) used throughout this clinic was nAbleMD. This clinic was unique in the fact that it had recently rebranded itself from a neurology clinic to an adult health primary care clinic.

Intervention
- With the use of the Plan-Do-Study-Act (PDSA) framework, this project established a mobile text messaging reminder system to prompt established patients at a primary care clinic to schedule and complete their AWVs. A chart auditing tool was used to collect the data on the patients who received a text message reminder and then those who scheduled and completed their AWVs within a 5-week period. This data was then analyzed to determine if the number of adult patients who scheduled and completed AWVs increased by at least 5% during the implementation period as compared to five weeks prior and 1 year prior.
- The number of patients who met the inclusion criteria was the original patient population of 2,086. The clinic EHR was then queried to determine the number of patients who came into the clinic for an AWV during three predetermined periods: five weeks one year prior to the intervention period; five weeks just prior to the implementation period; five-week intervention period. Of the original patient population of 2,086 patients, ICD-10 codes were used to determine which patients had not had an AWV in the last year, from 06/01/2022 through 05/31/2023, which totaled 1,528. After removing the patients who did not have a cell phone on file, had opted out of text messaging, and were banned from the clinic (due to excessive no-shows), a total of 1,320 patients were sent mobile text messages reminding them to schedule their AWVs.
- The data that was collected was evaluated by inputting the values into an Excel database and using the IBM Statistical Package for Social Science (SPSS) statistical software 26 to compare AWV scheduled and completion rates before and after the project implementation period. Both the post-intervention AWV scheduled and completion rates were calculated by dividing the number of AWVs scheduled and completed by the number of patients that met the inclusion criteria during the five-week implementation period who were sent a reminder to schedule their AWV. The rate was presented as a percentage change in the rate of scheduled and completed AWVs compared to 5 weeks prior as well as 1 year prior.
- When comparing the rates of AWVs during the different five-week periods, a non-parametric two-sided Chi-Square Test for Independence was used to assess for statistical significance, with a predetermined level of $p < .05$ considered significant.

Week	Activities
Week 1 7/5/23 – 7/11/23	- Educational presentation to providers and clinical staff, questions related to project implementation answered. - Mobile text messages sent to patients that meet inclusion criteria on Monday and Tuesday of week 1 of implementation period. - AWV educational tool supplied to advanced practice providers - MAs and Front Office Manager begin scheduling AWV
Week 2 7/12/23 – 7/18/23	- Provider use of AWV tool implementation continues - MAs and Front Office Manager continue to schedule AWV
Week 3 7/19/23 – 7/25/23	- Continuation of implementation activities - Begin to analyze EHR summary reports using EHR chart auditing tool 2 weeks after mobile text messaging implementation has begun.
Week 4 7/26/23 – 8/1/23	- Analysis of EHR summary reports using EHR chart auditing tool three weeks after mobile text messaging implementation has begun. - Continuation of implementation and data analysis
Week 5 8/2/23 – 8/8/23	- Continuation of implementation and data analysis. - Implementation period complete - Chart audits all complete by the end of week 5 of the implementation period.

RESULTS

Of the participants, 42% described their race/ethnicity as white non-Hispanic with African American being the second largest racial group at 21% The age range of the patients who scheduled and completed their AWVs within the intervention period ranged from 24 to 64 years old with the average age = 40 years old.
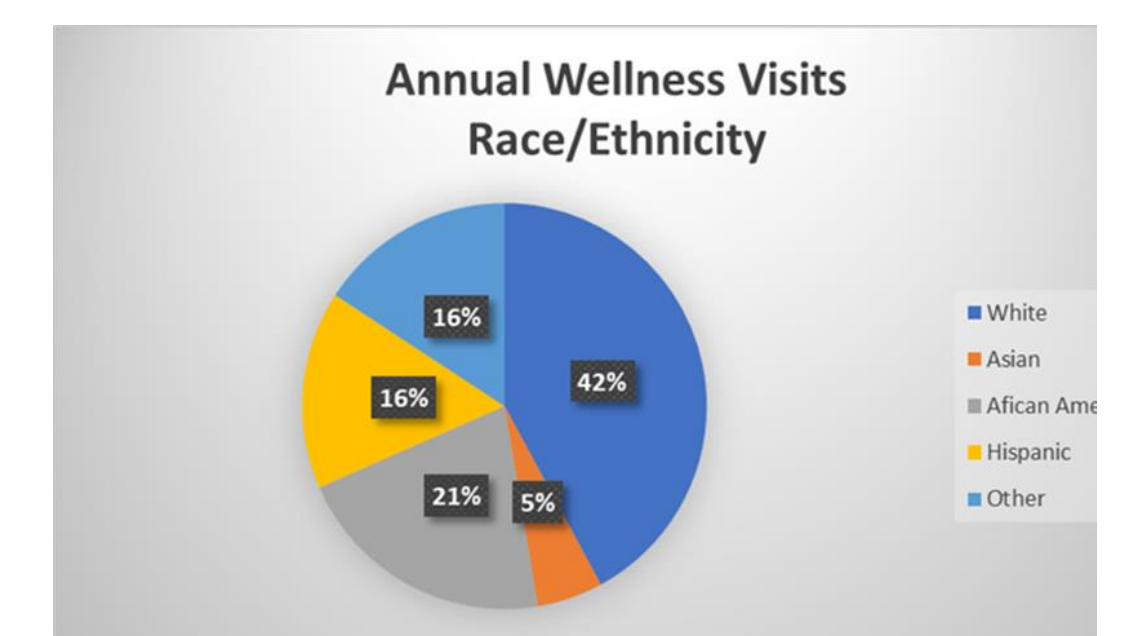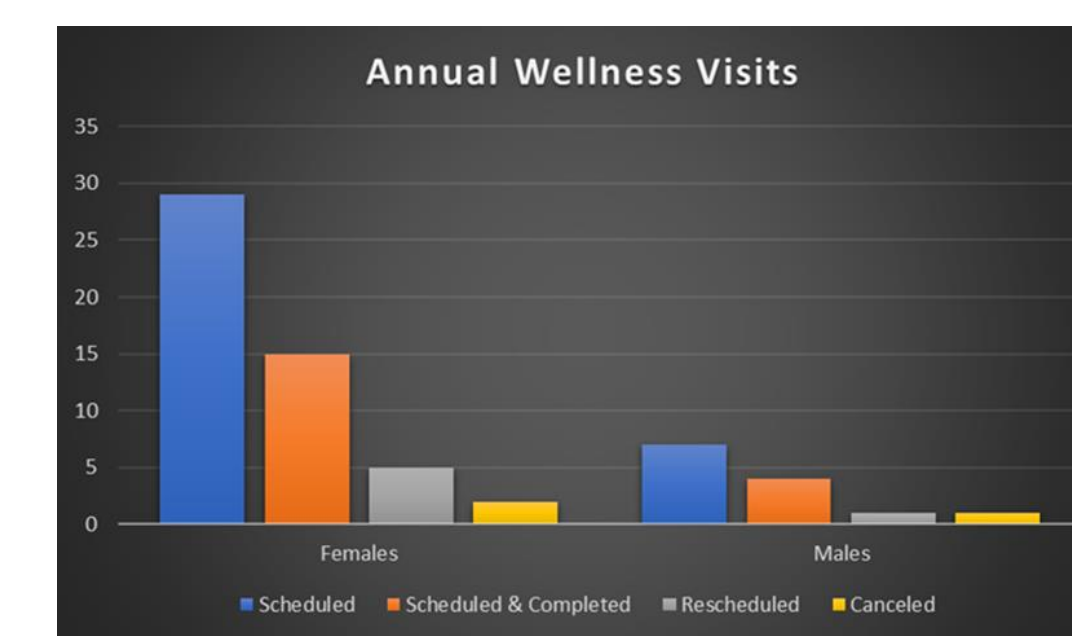
Of the 1,320 text messages sent out, 36 patients (2.7%) scheduled an AWV while 19 (53%) of the 36 were able to schedule and complete an AWV within the 5-week implementation period. Females made up 79% of those who scheduled and completed AWVs.
This QI project demonstrated a 325% increase in the number of patients that scheduled and completed AWVs during the intervention period, as compared to the same five-week period one year prior. Compared to the five weeks before the project was implemented, there was an 18.6% decrease in the number of patients who scheduled and completed their AWVs during the five-week implementation period of those who met the inclusion criteria.

	AWV Scheduled and Completed	Original Patient Population	Percentage Change	P Value
One Year Prior	24	2086		
5 Weeks Prior	102	2086	+325% compared to 1 year prior	< .001
Intervention 5 Weeks	83	2086	-18.6% compared to 5 weeks prior	.176

When comparing the rates of AWVs during the different five-week periods, statistical significance was also assessed, with a predetermined level of $p < .05$ considered significant. A comparison of the number of AWVs seen in the five weeks of 2022 (24) to the five-week intervention period (83), using a two-sided Chi-Square Test for Independence. The Chi-Square Test for Independence (with Yates' Continuity Correction) indicated a statistical association between these two groups, $p = < .001$. Then a comparison of the number of AWVs seen in the five weeks prior to the intervention (102) to the five-week intervention period (83). The $p = .176$, which was found to be not statistically significant.

CONCLUSIONS

Adult AWVs = Significantly increased as compared to the previous year
Primary Care Site = Plans to continue to use a reminder system and provider educational tool
Disseminate Project Findings
- Oral Presentation & Poster Presentation - Touro University, Nevada community
- Conference - Nevada State Board of Nursing - Las Vegas, Nevada - March 2024.
Further Research
- Impact text messaging may have on nurse practitioners' ability to reach clients who do not have access to other computer-based interventions
Next Steps
- National and local policies written to incorporate the use of mobile text messaging to integrate technology into the modern healthcare environment

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