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# The Impact of the 2020 Medicaid Expansion in a Community Clinic Serving the Marshallese Population in a Rural State

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## Abstract

Introduction

In December of 2020, the US government passed into law a bill allowing states to enroll Compact of Free Association citizens (including citizens of the Republic of the Marshall Islands) into Medicaid[1]. This study analyzes the impact of this expansion on the healthcare of Marshallese patients at a dedicated community clinic on a regional medical campus, serving this unique population.

Methods

Through retrospective review of patients who utilized the community clinic either before (05/2020 to 02/2021) or after (05/2021 to 02/2022) the Medicaid expansion, this study sought to compare patients' insurance information, number of total patients visiting the clinic, number of total patient visits, referrals per patient, and completed referrals per patient were compared between time periods.

Results

A total of 378 patients utilized the clinic during the study period. The results demonstrated a significant increase in patient utilization of healthcare services (20.1% vs. 8.7%, $p<0.01$), percentage of clinic visits that included referrals (23.6% vs. 16.5%, $p<0.01$), and percentage of completed referrals following the Medicaid expansion (16.1% vs. 10.5%, $p=0.03$). Analyses of comorbidities indicated similar disease burden in both pre and post cohorts.

Conclusion

The study's findings suggest an increase in the use of healthcare services following the expansion of Medicaid services to previously uninsured patients. Existing literature documents the gaps in primary care services for underrepresented and uninsured populations in the United States and the significant consequences of lack of access to care. Findings from this study can aid health policymakers in designing and implementing new strategies to increase healthcare access and utilization in target populations. Future research is needed to determine how



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these healthcare-related behaviors affect patient health and how expanding healthcare policies may elucidate such results on a larger scale.

Keywords: Medicaid; Pacific Islander Health; Minority Health; Community Clinic; Regional Medical Campus

## Introduction

In December of 2020, the United States government passed into law a bill allowing states to enroll Compact of Free Association (COFA) citizens into Medicaid[1]. This expansion included new coverage for individuals native to the Republic of the Marshall Islands, a population that had been mostly uninsured since 1996[2]. This study analyzes the impact of this expansion on the healthcare of Marshallese patients at a dedicated community clinic on a regional campus serving this unique population. The primary study outcome was primary care office visit utilization; the secondary outcome was referrals to specialty services; the tertiary outcome was utilization of Medicaid insurance coverage.

## Methods

A retrospective review of electronic medical record data (Epic Systems, Verona, WI) of Marshallese patients who visited a Marshallese community clinic both before (May 2020 to February 2021) and after (May 2021 to February 2022) the 2020 Medicaid expansion was completed. The community clinic was housed at a regional medical campus. The clinic is an interprofessional, primary-care, student-run clinic that operates once a week. During clinic hours, students from multiple disciplines (College of Medicine, College of Pharmacy, and College of Health Professions) provide care to patients alongside faculty from each department. Each physician operating out of the clinic provides primary care. Any specialty or sub-specialty care is completed via referral. The structure and operation of the clinic did not change during the study time frame. Demographic characteristics, comorbid conditions, insurance status, number of clinic visits, and referrals to specialty care were queried to assess for changes in healthcare utilization.  Software embedded in the electronic medical record system was utilized to obtain lists comorbidities based on the Elixhauser categorizations, which are based on ICD diagnostic codes[3]. Van Walraven scores of comorbidities were calculated utilizing a similar embedded software that converts Elixhauser comorbidity categorizations into the patient's score utilizing van Walraven et al.'s formula[4].

This study was deemed nonhuman research by our Institutional Review Board (IRB #274175).

*Statistical Analysis*

Chi-square tests were performed to examine the relationship between the Medicaid expansion and several measures of healthcare utilization such as the number of patients using Medicaid, the number of visits with referrals, and the rate of completed referrals. Prior to this analysis, demographic measures from the pre- and post-expansion groups were evaluated using chi-square tests for categorical variables (e.g., patient sex and comorbidities) and independent t-tests for continuous variables (e.g., patient age).

All analyses were conducted in R Version 4.3.2[5] with statistical significance defined as $p < 0.05$.

## Results

In total, 378 patients were included in the study. The mean age was 52 years, 66% were female, and 100% identified as Native Hawaiian/Pacific Islander. Demographics of the cohort are displayed in Table 1. There were no statistical differences between the study groups in total number of comorbidities (3.54 vs 3.50, p=0.77) or van Walraven score of comorbidities (2.05 vs 2.28, p=0.55). The detailed list of comorbidities in pre- and post-cohorts are listed in Table 2, with only hypertension being more prevalent in the cohort before Medicaid expansion.

*Table 1: Demographic Characteristics of Patients by Time Period*

| Demographic | Pre-Expansion (N = 173)[a] | Post-Expansion (N = 205)[a] | p-value[b] |
|---|---|---|---|
| **Sex (M/F)** | | | .6093 |
| Female | 113 (65.32%) | 139 (67.80%) | |
| Male | 60 (34.68%) | 66 (32.20%) | |
| **Age (years)** | 53.13 (12.92%) | 52.43 (12.52%) | .5949 |

[a] Values are N (%) for Categorical Variables and Mean (SD) for Continuous Variables
[b] Two-sided p-value for demographic differences between pre- and post-expansion time periods utilizing $^{2}$-Tests for Categorical Variables and Independent T-Tests for Continuous Variables

*Table 2: Comorbidities of Patients by Time Period*

| Demographic | Pre-Expansion (N = 173)[a] | Post-Expansion (N = 205)[a] | p-value[b] |
|---|---|---|---|
| Alcohol Abuse | 2 (1.16%) | 1 (0.49%) | .4657 |
| Anemia | 15 (8.67%) | 17 (8.29%) | .8954 |
| Blood Loss | 2 (1.16%) | 2 (0.98%) | .8644 |
| Congestive Heart Failure | 6 (3.47%) | 9 (4.39%) | .6473 |
| Chronic Lung Disease | 4 (2.31%) | 5 (2.44%) | .9357 |
| Coagulopathy | 2 (1.16%) | 2 (0.98%) | .8644 |
| Depression | 13 (7.51%) | 8 (3.90%) | .1267 |
| Diabetes Mellitus, uncomplicated | 116 (67.05%) | 132 (64.39%) | .5873 |
| Diabetes Mellitus, complicated | 115 (66.47%) | 117 (57.07%) | .0615 |
| Drug Abuse | 2 (1.16%) | 1 (0.49%) | .4657 |
| Hypertension | 120 (69.36%) | 122 (59.51%) | .0468* |
| Hypothyroidism | 4 (2.31%) | 4 (1.95%) | .8081 |
| Liver Disease | 9 (5.20%) | 8 (3.90%) | .5435 |
| Fluid and Electrolyte Disorders | 19 (10.98%) | 19 (9.27%) | .5808 |
| Neurodegenerative Disease | 4 (2.31%) | 3 (1.46%) | .5420 |
| Obesity | 26 (15.03%) | 30 (14.63%) | .9143 |
| Paralysis | 4 (2.31%) | 1 (0.49%) | .1219 |
| Peripheral Vascular Disease | 5 (2.89%) | 5 (2.44%) | .7854 |
| Psychoses | 6 (3.47%) | 3 (1.46%) | .2028 |
| Renal Failure | 23 (13.29%) | 29 (14.15%) | .8107 |
| Tumor | 4 (2.31%) | 2 (0.98%) | .3003 |
| Peptic Ulcer Disease | 2 (1.16%) | 1 (0.49%) | .4657 |
| Valvular Disease | 4 (2.31%) | 4 (1.95%) | .8081 |
| Weight Loss | 4 (2.31%) | 5 (2.44%) | .9357 |

[a] Values are N (%) corresponding to patients that have the comorbidity

[b] Two-sided p-value for demographic differences between pre- and post-expansion time periods utilizing $^{2}$-Tests

The results demonstrated that a significantly higher number of patients with Medicaid utilized primary care services compared to the pre-expansion group (20.1% vs. 8.7%, p<0.01, Table 3). The percentage of clinic visits that included referrals to specialists also displayed a significant increase after Medicaid expansion (23.6% vs. 16.5%, p<0.01, Table 3). The percentage of referrals that were completed rose significantly in the Medicaid group when compared to the uninsured group (16.1% vs. 10.5%, p=0.03, Table 3). The increase in patients encounters after Medicaid expansion was significantly higher than the population growth of Hawaiian and Pacific Islander populations in the county over the same time (18.50% vs. 11.32%, p>0.05, Table 4).

*Table 3: Financial, Visit, and Referral Outcomes by Time Period*

| Outcome | Pre-Expansion | Post-Expansion | p-value[a] |
|---|---|---|---|
| Number of Patients | N = 173 | N = 205 | |
| Patients Using Medicaid (%) | 2.89 | 9.76 | .0037* |
| Number of Visits | N = 495 | N = 512 | |
| Visits with Referrals (%) | 36.16 | 52.15 | < .0001* |
| Number of Referrals | N = 179 | N = 267 | |
| Completed Referrals (%) | 18.44 | 62.17 | < .0001* |

[a] One-sided p-value for positive differences between pre- and post-expansion time periods utilizing $^{2}$-Tests

*Table 4: Census Data for Northwest Arkansas*

| Counties | Total Population | Pacific Islander Population |
|---|---|---|
| **Benton and Washington** | | |
| 2010 | 424,404 | 4,795 |
| 2020 | 530,204 | 11,428 |
| Population Growth (%) | 24.9 | 138.3 |
| Average Annual Growth (%) | 2.49 | 13.83 |
| **Benton County** | | |
| 2010 | 221,339 | 667 |
| 2020 | 284,333 | 2,629 |
| Population Growth (%) | 28.5 | 294.2 |
| Average Annual Growth (%) | 2.85 | 29.42 |
| **Washington County** | | |
| 2010 | 203,065 | 4,128 |
| 2020 | 245,871 | 8,799 |
| Population Growth (%) | 21.1 | 113.2 |
| Average Annual Growth (%) | 2.11 | 11.32 |

## Discussion

This study showed a distinct increase in healthcare utilization by Marshallese patients at a community clinic following the 2020 expansion of Medicaid. The Marshallese Compact of Free Association (COFA) Migrants population living in the United States has been without access to Medicaid for more than 20 years[2,6]. For a population with increased comorbidities and complications of disease, access to healthcare is of paramount concern[7-14]. Prior studies have shown the positive impacts on healthcare of Medicaid expansions that took place under the Affordable Care Act[15-17]. However, the Marshallese population was not eligible to receive Medicaid at this time[6].

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Prior studies have demonstrated an increase in primary care usage among populations who are granted access to Medicaid[18,19]. Metrics such as primary care visits and individuals with a primary care physician were shown to increase with access to Medicaid[18,20]. In the present study, the number of patient visits to a community clinic increased in the post-expansion group. Within the Marshallese population served by this clinic, there was an increase in primary care visits once Medicaid became available.

Access to specialty services among Medicaid-eligible groups has yielded mixed results in the literature. While increased rates of specialty provider visits and specialty surgeries are reported, challenges remain for Medicaid-enrollees requiring specialty care, especially those referred from community health clinics[18,19]. This study demonstrates increases in both patient referral and completion of referrals following Medicaid expansion. Among the Marshallese population residing in Arkansas, Medicaid expansion has improved access and utilization of specialty care services.

Medicaid coverage has also been shown to increase following expansion[15,18]. In the present study population, Medicaid usage rates were elevated in the post-expansion group. More clinic patients employed Medicaid as their form of insurance following the expansion.

A limitation of this study is that it is unable to determine if this increased healthcare utilization following the Medicaid expansion is sustainable. Since the adult COFA Marshallese population was otherwise ineligible for non-private health insurance prior to it, the expansion could have brought about an early increase in the usage of health services. This may be especially true of referrals which may not take place as frequently as they did once the population was able to acquire coverage. Another limitation of this study is that since the percentage of the population with Medicaid (23.6%) is still relatively low, the data captured here may not completely represent how the expansion will affect this population in the long-term.

## Conclusion

This study's findings suggest an increase in the use of healthcare services following the expansion of Medicaid. Patients were not only given a higher percentage of referrals per visit, but those referrals were also being completed at a higher rate. In addition, the results indicate that more clinic patients employed Medicaid as their form of insurance following the expansion. These findings may help health policymakers in designing and implementing new strategies to increase healthcare access and utilization in target populations. Future research is needed to determine how these healthcare-related behaviors affect patient health and how expanding healthcare policies may elucidate such results on a larger scale.

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