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“Warm Handoff” to Increase Enrollment in a Maternal Infant Health Program

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Abstract

Introduction: In a Midwest Health Department's (HD) Maternal Infant Health Program (MIHP), infant death rate has been on a steady incline at 4.8 deaths per 1,000 in 2019 (Michigan Department of Community Health, 2020). Implementation of a "warm handoff" between the local HD and Michigan Department of Health and Human Services (MDHHS) was created to increase enrollment and visits. During warm handoffs, health care providers work together within the same setting to provide evaluation and care to patients and clients (Musselman et al., 2018). **Methods:** This program evaluation reviewed data retrospectively from March 31 to September 30, for 2019 and 2020. Data were analyzed using percentage change calculations, Wilcoxon Signed Rank Test, and common themes from a staff survey. **Results:** A total of 946 records were reviewed between three groups: 2019, 2020 "warm handoff" pilot program, and 2020 cold calling. Data percentage change calculations showed a 1.3% decrease in enrollment from 2019 to 2020, and 26% less clients enrolled in the pilot program compared to cold calling. Data Percentage Change calculations also resulted in a 24.0% increase in completion of three or more visits from 2019 to 2020, and 23.2% less clients completing three or more visits in the cold calling group compared to enrollment in the pilot program. The Wilcoxon Signed Rank Test resulted in a Z score of -2.20 and a p-value of 0.028. Staff survey responses stated the "warm handoff" was successful in enrolling clients, but not subsequent visits. Barriers were present within the program, including telehealth, lack of client knowledge of services, and commitment to the pilot program by staff. **Conclusions:** Implementation of a "warm handoff" is an instrumental tool for organizations to incorporate within their MIHP programs which may increase enrollment, subsequent visit, and revenue.

Keywords: Maternal Infant Health Program (MIHP), "warm handoff", health department, Michigan Department of Health and Human Services (MDHHS), program evaluation, electronic health record (EHR)

Introduction

Prenatal care early during pregnancy is a crucial step to increase the likelihood of positive outcomes for their pregnancy. Although various resources are available for prenatal and postnatal care, disparities in accessing care exists (Choudhury & Danawi, 2019). Choudhury and Danawi (2019) state, disparities in care contribute to the infant mortality rate in the United States which is 5.9 deaths per 1,000 live births. Within the county HD, the infant death rate has been on a steady incline at 4.8 deaths per 1,000 in 2019 (Michigan Department of Community Health, 2020). Home visiting programs are an essential component of maternal and infant healthcare nationwide, which can reduce disparities in health (Meghea et al., 2015).

Participation in MIHP services improves health care utilization for mothers and infants through early prenatal program enrollment and screenings, while reducing the risk of prematurity and low birth weight (Meghea et al., 2015). Mothers are eligible for nine visits for themselves, eighteen visits for their infant after birth, and an additional eighteen visits for infants who are identified as substance exposed. Three or more subsequent visits within MIHP services has shown to improve the outcomes for mothers and their infants (Meghea et al., 2015). In addition to the health benefits these programs impact healthcare costs nationwide including national savings of $71, 377.52 per 100 births, and a return on investment of 138.0% (Peters et al., 2015). Though 45.0% of births are covered by Medicaid in Michigan, only 30.0% of eligible mothers participate in MIHP, leaving thousands of potential visits, health resources, and profits lost (Peters et al., 2015.).

In the (HD), the financial aspect of MIHP is essential to their success. Within the last seven years at the county HD, the number of visits decreased from 14,570 to 7,609 while the cost per visit increased from $273.76 to $335.51. This overall decrease in visits and increase in costs has led the county HD to a 3.0% decline in profits (XXXX, 2019). Lastly, Medicaid reimburses for the visits but had not yet standardized reimbursement for telehealth services during the COVID-19 pandemic, making profits unknown at the time of implementation.

Through the Systems Transformational Framework for Healthcare Workers (STF) by Scott and Pringle (2018), a SWOT assessment of the organization was performed. Strengths within the organization included experienced leadership, and a DNP student intern working within the department. Weaknesses within the organization included loss of revenue within MIHP, and additional workload due to COVID-19. Opportunities for the organization included various partnerships within county organizations and delivering visits via telehealth despite COVID-19 restrictions. The greatest threats within the organization were related to COVID-19, including slowdown of mail delivery resulting in an ongoing lack of trust from the community.

A comprehensive literature review was completed using the PRISM model (Moher et al., 2009). Seven articles were reviewed including overall themes of warm handoffs, enrollment in services, and health care providers working together within the same setting to provide evaluation and care to patients and clients. Richter et al. (2016) stated warm handoffs are effective for enrollment, but results were not statistically significant *(p= 0.88)*. Horevitz et al. (2015) found results were not significant in initial attendance, but correlation between using the patient's native language and their participation (*p= 0.016, 95% CI [1.29,11.98])* was significant.

Three studies favored implementing a "warm handoff" for increasing enrollment in services, but statistically significant results were not achieved in these studies (Mussleman et al., 2018; Cohen et al., 2015; Pace et al., 2018). Boudreaux et al. (2015) found implementation of a "warm handoff" within their services produced statistically significant results ($x^2 (4, N=50) ; p= 0.001$).

Correlating with Boudreaux et al. (2015), Saag et al. (2018) stated warm handoffs were statistically effective in improving patient safety and preparedness via survey results ($p < 0.001$). Although all current literature in the review did not report statistically significant results, positive correlation between implementation of a "warm handoff" and client or patient enrollment in services was clinically significant.

Purpose of the Project

Efforts to improve a county's MIHP service utilization was a priority leading to the implementation of a "warm handoff" pilot program. Staff performed services using telehealth for clients who were enrolled in Medicaid Services, and thus eligible for MIHP services. Telehealth visits occurred over a "warm handoff" via a three-way phone call between the MDHHS case manager, MIHP staff, and client. The purpose of this project was to evaluate effectiveness of the "warm handoff" pilot program by examining enrollment, subsequent visits, revenue, and barriers within MIHP services.

Methods

Design and Setting

The design was a program evaluation guided by the Plan Do Study Act (PDSA; IHI, 2020), and the CDC Framework for Program Evaluation (CDC, 1991, 2018). The study received

IRB approval by The Michigan Department of Health and Human Services as an exempt human subjects research study. The setting of the evaluation was at a Midwest county HD's MIHP.

Measures

Data were collected from a convenience sample of women and infants who were enrolled in MIHP services between the dates of March 31 to September 30, for 2019 and 2020. All data (enrollment, subsequent visits, and revenue) were collected from two HIPPA compliant electronic health systems (EHR). Additionally, an electronic survey was distributed to a convenience sample of one staff member from MDHHS and 16 county MIHP staff working within the pilot program. No patient demographics were collected aligning with the approved IRB project protocol.

Data Analysis

Enrollment

Analysis of total maternal and infant enrollment was performed collectively, in other words, mom and baby equaled one enrollment, due to the way the pilot program data was originally collected. A review of 946 client records who were enrolled in services in the targeted time frame was completed using billing codes to decipher between initial enrollment, and subsequent visits. Records were separated into three separate groups, the 2019 enrollees, those in the 2020 pilot program, and moms/infants in the 2020 "cold calling" group.

Subsequent Visits

Data regarding the number of visits completed by all clients enrolled in services was reviewed in the two EHRs. Data included the number of clients for each group of the three groups, 2019, 2020 pilot program, and 2020 cold calling, who completed three or more

subsequent visits after initial enrollment in MIHP. Analysis of this data was performed using percent change calculations.

Revenue

Revenue data were extracted from the two HIPPA compliant EHRs through a review of monthly statements for March 31, 2019 to September 30 for 2019 and, 2020. The HD received 95% of total costs billed to Medicaid, and these totals were used in the data analysis. Results were analyzed using SPSS 24 via the Wilcoxon Signed Rank Test.

Survey

An electronic staff perception survey was distributed to 17 staff members from MDHHS and the county MIHP. Survey questions were:

Staff Perception Survey

Q1. Has the "warm handoff" been successful for your client appointments? Please explain below

Q2. Are there perceived barriers to enrolling mothers in the MIHP/MDHHS Pilot Program? If Yes, please list below

Q3. Are there perceived barriers when scheduling subsequent visits with enrolled MIHP clients? Please explain below

Results

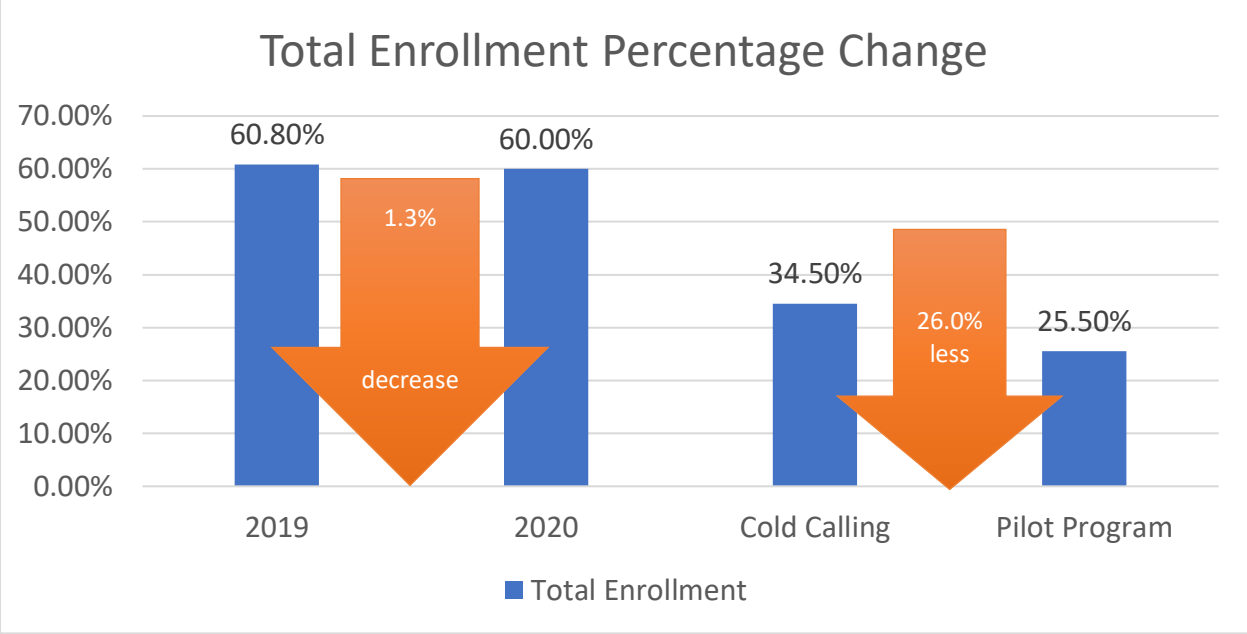
Enrollment

In 2019 there was an enrollment of 548 out of 901 contacts; in the 2020 cold calling group 298 out of 865 enrolled; in the 2020 pilot group 100 out of 378 enrolled. Almost 61.0% of all clients contacted for services enrolled in MIHP services in 2019. In 2020 there was a 25.5%

enrollment in services for the pilot program and 34.5% of all clients enrolled in the cold calling program. Although there was a 26.0% decrease in enrollment between the two 2020 processes, the year-by-year comparison for 2019 and 2020 found a small difference in overall enrollment (1.3% decrease; see Figure 1).

Figure 1

Total Enrollment Percentage Change

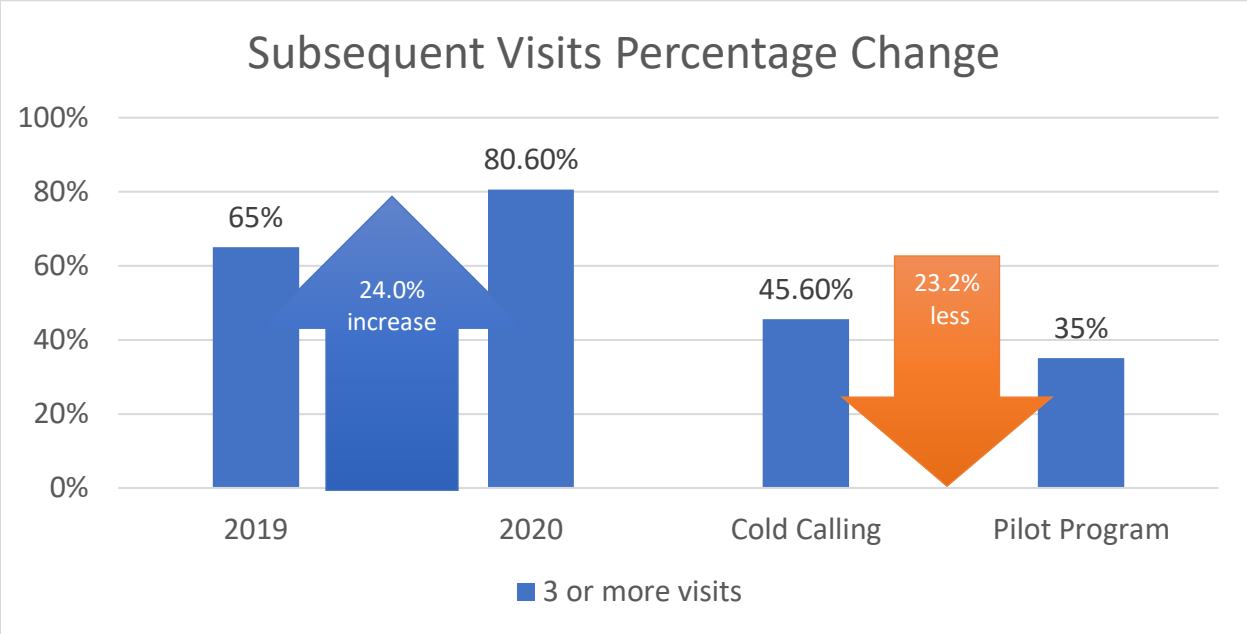


Subsequent Visits

Subsequent visits were analyzed by calculating the percentage change using total enrollments of maternal and infants combined due to the way data was originally collected. The total number of those who completed three or more visits were 367 participants in 2019, 136 participants in 2020 enrolled through cold calling and 35 participants enrolled through the pilot program. Of note, MIHP had 24.0% more clients complete three or more visits in 2020 (cold calling enrollment and warm hand-off) compared to 2019 (See Figure 2).

Figure 2

Completion of Three or More Subsequent Visits Comparison



Revenue

Total revenue equaled $323,297.68 in 2019 and $213,755.24 in 2020. A Wilcoxon Signed-Rank Test was performed using SPSS 24 analyzing revenue between March 31 to September 30 for 2019 and 2020. There was a statistically significant difference in the revenue ($Z = -2.20$, $p = 0.028$).

Staff Surveys

Perception surveys were sent to 17 staff members resulting in responses from seven staff members or a 41% response rate. For question one, employees agreed the "warm handoff' was successful in reaching families who would otherwise have not enrolled." Additionally, the "warm handoff" was "helpful for enrolling clients initially, but not effective in the completion of subsequent visits."

Responses to question two identified the barriers of lack of knowledge of MIHP, telehealth, and not feeling like they can tell their case worker "no". Question three responses

indicated barriers to the completion of subsequent visits included using telehealth, clients not answering their phone, and staff's time commitment to other MIHP duties.

Discussion

Aligning with current literature, results of the "warm handoff" pilot program varied. Evaluation of the "warm handoff" pilot program provided clarity to the effectiveness of the program. Enrollment results of a 1.3% decrease in enrollment show even though barriers were present in the implementation, and MIHP staff were able to overcome these barriers and enroll clients in services. This conclusion was further evident by evaluation of subsequent visits resulting in a 24% increase for those who completed three of more subsequent visits in 2020 compared to those in 2019.

Meghea et al. (2015,)) describes the effective efforts of MIHP programs as "promoting healthy pregnancies, positive birth outcomes, child health and development through comprehensive risk screening, care coordination, and evidence-based interventions embedded in standardized program protocols" (p. 335). Additionally, these outcomes are more sustainable by ensuring completion of allotted subsequent visits (Meghea et al., 2015). As stated previously, results from the county MIHP subsequent visits equated to three of more subsequent visits at 65.0% for 2019, 35.0% for the pilot program, and 45.6% for the cold calling avenue of enrollment. However, there would need to be further evaluation within the "warm handoff" pilot program to confirm services were effective in improving health outcomes.

Although the implementation was limited by COVID-19, MIHP staff time availability, and telehealth, the organization was able to enroll clients and schedule subsequent visits within the program. Results from the pilot program demonstrated a "warm handoff" can improve enrollment within MIHP services when barriers, such as changing visits from in the home to

telehealth are addressed. Additionally, survey results yielded a 41% return rate and were overwhelmingly positive towards the "warm handoff" implementation. In future implementation, these barriers should be addressed to further improve the percentage of enrollment and completion of subsequent visits.

Outcomes pertaining to patient health and fiscal impact of a "warm handoff" within an organization have not been statistically significant (Pace et al., 2018). However, current literature states the use of a "warm handoff" between providers may increase the probability clients will enroll in referred healthcare services such as MIHP (Musselman et al., 2018). Additionally, improving outcomes in the health of infants and mothers within MIHP services assists in overall revenue by saving Medicaid 4.5 million dollars for every 10 NICU admissions (Chea, 2019). These additional benefits of MIHP services warrant the continuation of implementations, such as a "warm handoff" to improve enrollment, subsequent visit completion, while increasing revenue and improving client outcomes.

Limitations

The DNP student was unable to attend any of the enrollment sessions or subsequent home visits in person due to limitations imposed by the COVID-19 pandemic. Additional limitations entailed collecting data from a EHR system no longer used by the HD. Despite these limitations, the program evaluation was completed thoroughly through an interprofessional collaboration between MIHP and MDHHS.

Conclusion

The "warm handoff" pilot program evaluation was successful in evaluating the efficacy and efficiency of the implementation. This unique implementation can be replicated by other institutions across the state; therefore, reaching all eligible mothers and infants eligible for MIHP

services. Recommendations were provided to the organization for a further 1- and 2-year evaluation completed by another DNP student intern. Due to this being a new innovative process for enrollment, further evaluations should be conducted to quantify enrollments, subsequent visits, revenues, and client outcomes. Lastly, interprofessional collaboration between the county MIHP and MDHHS created a foundational partnership supporting MIHP services for mothers and infants on Medicaid, working towards improving health outcomes.

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DNP Project Final Defense

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  - Dr. Kelli Damstra, DNP, MSN, RN (KCON Faculty)

Objectives for Presentation

1. Review the clinical problem
2. Review the organizational assessment and literature review for health department and "warm handoffs"
3. Review results and analysis of data collected from the "warm handoff" program
4. Discuss sustainability and dissemination related to the "warm handoff" pilot program

Introduction

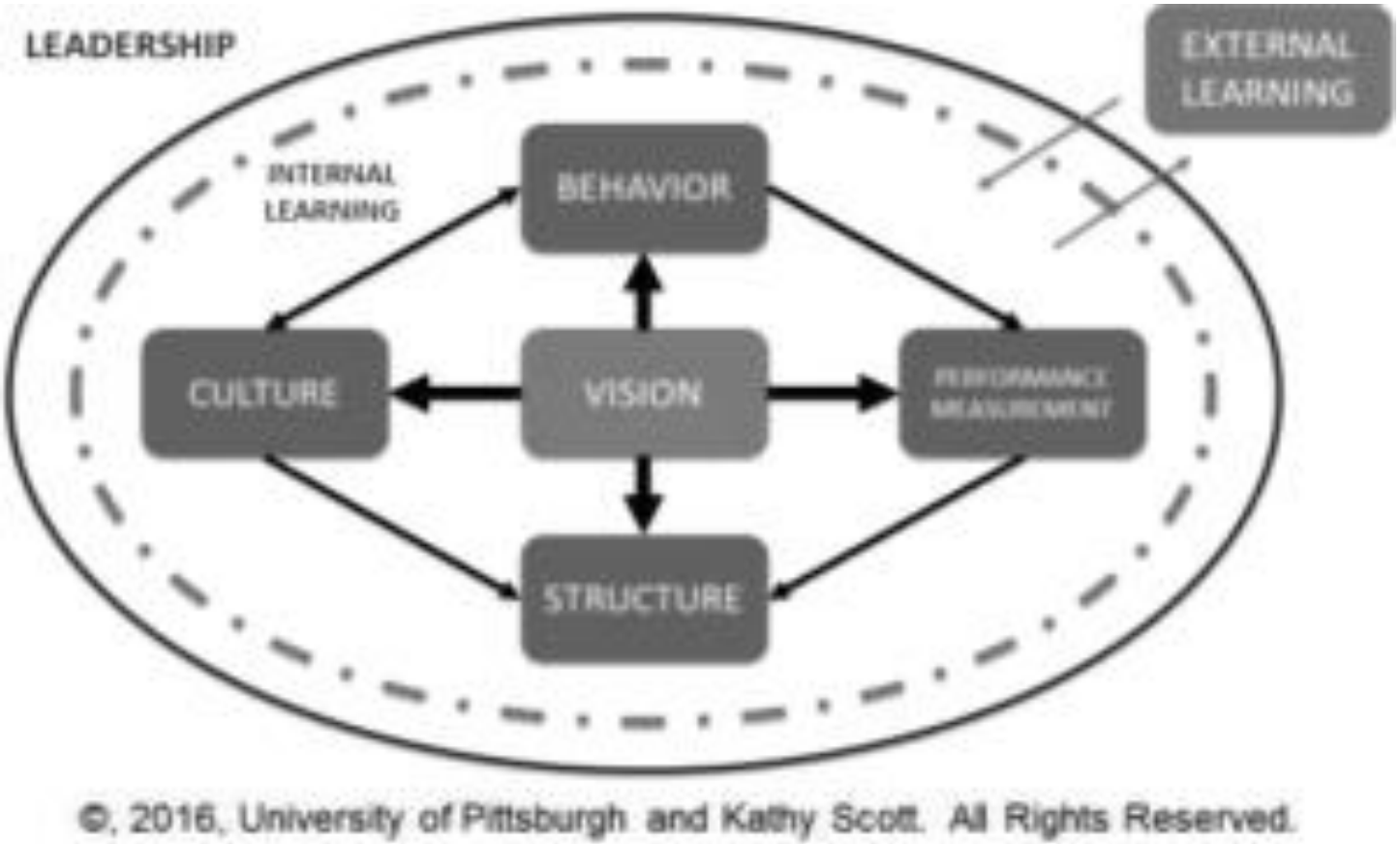
- The XXXX County infant death rate has been on a steady incline at 4.8 deaths per 1,000 in 2018 (Michigan Department of Community Health, 2020)
- Participation in MIHP services improves health care utilization for mothers and infants through early prenatal program enrollment and screenings while reducing the risk of prematurity and low birth weight (Meghea et al., 2015)
- Within Michigan, 45% of births are covered by Medicaid (Meghea et al., 2015)
- The Michigan Department of Health and Human Services (MDHHS) (2020) describes MIHP as a benefit for Medicaid-eligible mothers to supplement medical (prenatal and infant) care

Organizational Assessment

Organizational Assessment

- The Midwest Health Department is responsible for continually assessing the health of the community and ensuring certain services are available and accessible for its citizens (XXXX, 2020)
- Consists of four divisions
  - Community Wellness Division – includes MIHP
  - Center for Community Health and Strategies
  - Community Clinical Services
  - Environmental Services

Systems Transformational Framework for Healthcare Workers (STF)



(Scott & Pringle, 2018)

SWOT Analysis

Strengths

- Clear vision, mission, & values
- **Experienced leadership and staff**
- Interdisciplinary programs
- **Intern working within HD**

Weaknesses

- Divisions work separately
- Open FTE in MIHP
- **Loss of revenue within MIHP**
- **COVID-19 changed MIHP responsibilities**
- Staff bias towards participating in program due to duties changing from COVID-19

Opportunities

- **Partnerships with county organizations to improve current programs, such as MIHP**
- **Implement three-way calling between MDHHS and HD**
- External Partnerships
- Consistency in case manager assignments 47 visits per month through DHHS/MIHP "warm handoff" initiative

Threats

- **COVID-19**
- **Slowdown of mail delivery due to COVID-19**
- **Trust in HD from the community**
- Home visiting has ceased currently due to COVID-19
- Multiple MIHP in the county to choose from

Clinical Practice Question

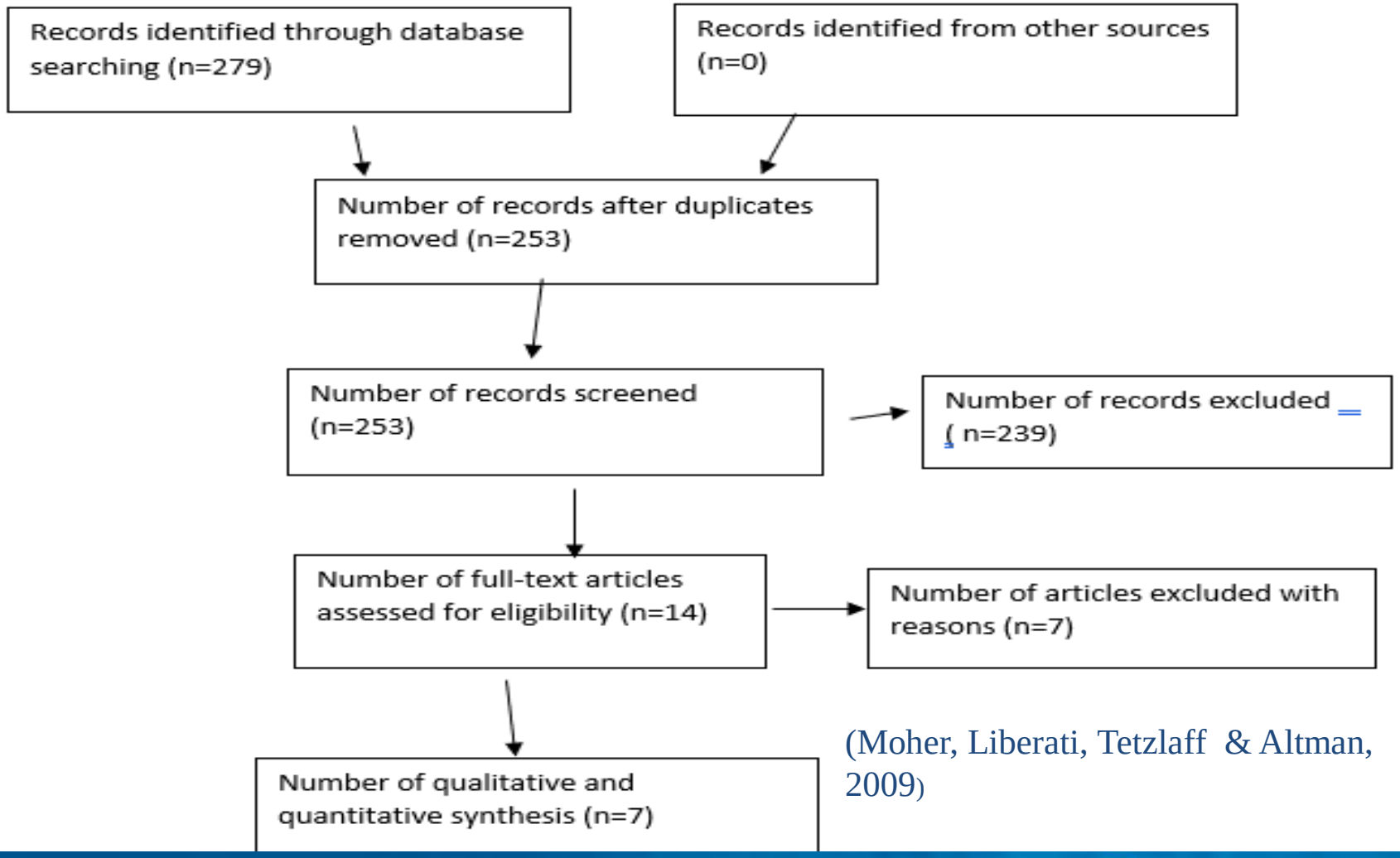
Will implementation of a “warm handoff” from a MDHHS case manager to a MIHP health worker increase enrollment, revenue, and subsequent visits within the HD MIHP?

Literature Review

Literature Review

- Aim: Review evidence on the effectiveness of “warm handoffs” in healthcare
- Focus: Increase enrollment in MIHP enrollments
- Methods: Systematic rapid literature review was electronically conducted in databases, including CINAHL, PubMed, and ProQuest. Academic journals, in the English language during the period 2015 to 2020
- Inclusion/Exclusion: Academic journals. English language. Adult patients or those who participated in a “warm handoff
- Keywords: Warm handoff & warm handoff toolkit

PRISMA Figure



(Moher, Liberati, Tetzlaff & Altman, 2009)

Synthesis of Results

Citation	Intervention	Results
Mussulman et al. (2018) Randomized Control Pilot Study	On the spot enrollment via a "warm handoff" into a smoking cessation program versus a fax referral	Smoking cessation rates equal 100% in warm handoff versus 71.4% in fax referral at 6 months (not significant).
Cohen et al., (2015) Longitudinal Study and Cross-Sectional Study	Implementation of REACH program. One step of the program involved initiating a warm-handoff. Used observation, surveys, & interviews	Six out of the 19 practices involved in the three-year study used a warm handoff between providers when transferring patients for treatments.
Richter el al., (2016) Randomized Control Pilot Study	In person warm handoff at the bedside to services versus a fax referral	Warm handoff are more effective than fax referrals for participants enrolled in quitline. (mean=1.25, SD=1.71) ($p < 0.001$)
Pace et al. (2018) Retrospective Study	Initiate warm handoff to increase the attendance rates at behavioral health appointments	No association found between warm handoff and increases in attendance

Synthesis of Results

Saag et al. (2018) Cross-Sectional Study	**Residents performing a in-person "warm handoff" in between shifts on patients**	**Improved patient safety and preparedness (p < 0.001) 85% (95% CI, 80%– 95%) of residents felt warm handoffs were safer for patients than written hand-offs**
Horevitz et al. (2015) Retrospective Study	Initiate warm-handoff between primary care provider to behavioral health care provider to increase the odds Latinos will attend an initial behavioral health appointment	Results not significant in initial attendance, but correlation between using the patient's native language and their participation. (p = 0.016, 95% confidence interval=1.29–11.98)
Boudreaux et al. (2015) Randomized Control Study	Nurse/physician contact R-BIRTH services in the ED to sign up for alcohol cessation program, and then hand the phone to patient through a "warm handoff" to sign up for services	N=50 with a significance shown (p <0.001) 40% of all patients in the ED signed up

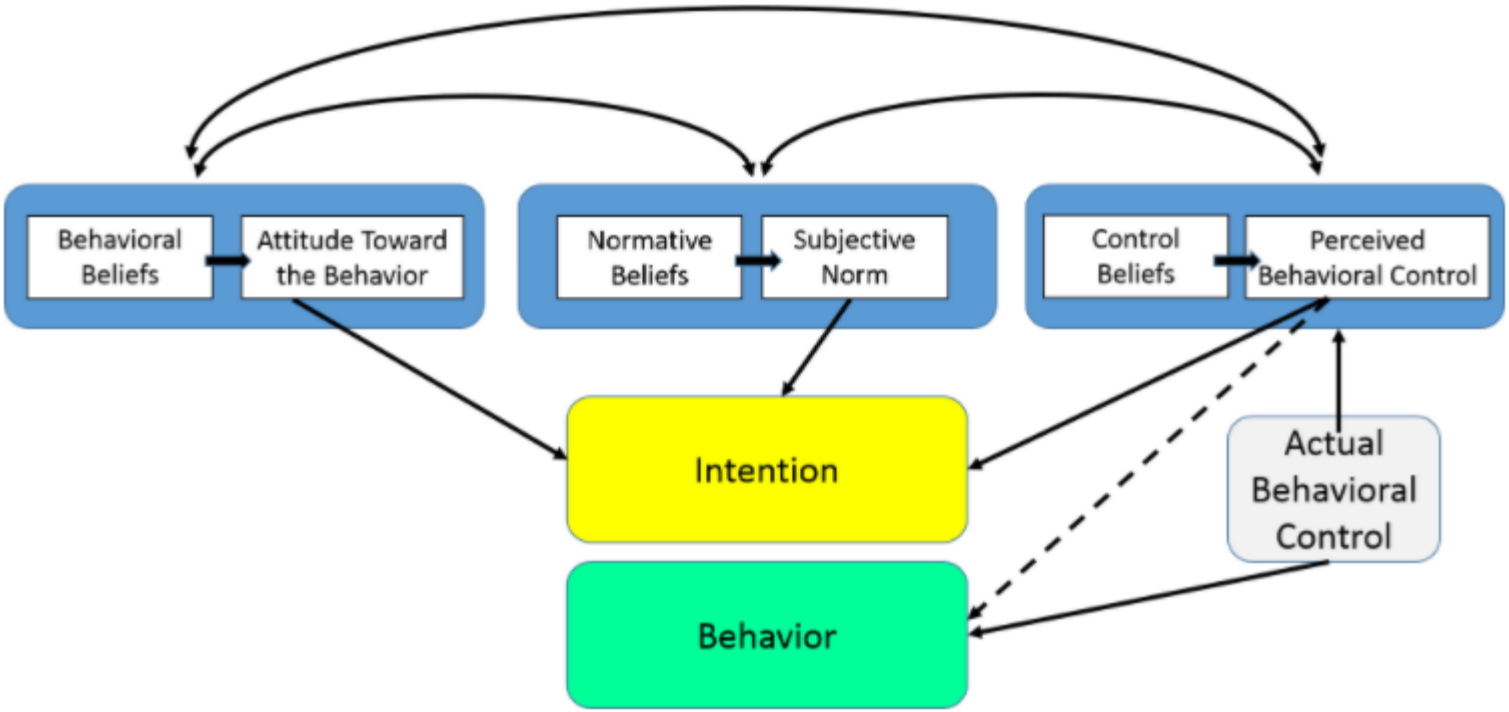
Summary Of Current Knowledge

- Warm handoffs are an effective and efficient tool for healthcare providers to use for increasing enrollment into programs.
- Warm handoffs are used on its own or as a step within a program.
- Outcomes related to patient health and fiscal impact of using a warm handoff within an organization have not been statistically significant within current studies.

PROJECT PLAN

Phenomenon Model

- The Theory of Planned Behavior



(Boston University of Public Health ,2019; Ajzen, 1991)

Project Purpose & Objectives

Purpose: Program Evaluation of "warm handoff" between a MDHHS case worker and MIHP

Project Objectives:

1. Analyze retrospective data collected through a EMR system and surveys.
2. Identify barriers and facilitators to initiating a "warm handoff" through a qualitative staff survey
3. Increase enrollment in the HD MIHP

Project Type, Settings, Resources, Participants & Stakeholders

1. Type: Program Evaluation of retrospective data from a EMR system and survey results

2. Settings: Home Visitation Program. Meetings virtually via a three-way phone call

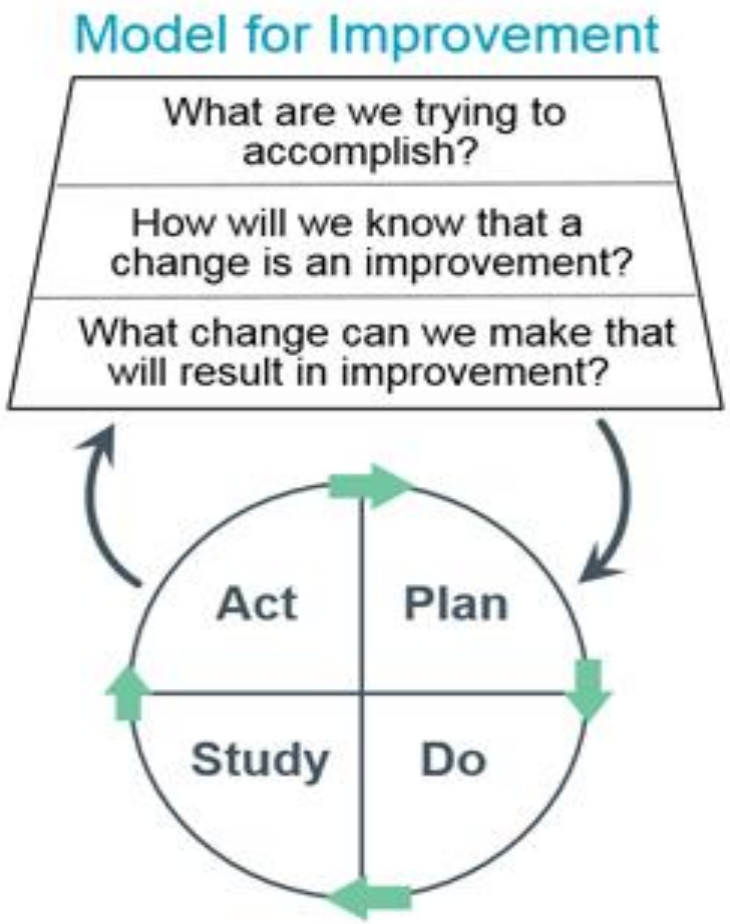
3. Resources: Interdisciplinary partnership between MDHHS and HD MIHP staff. DNP student assisting with evaluation and sustainability of program

4. Participants: Pregnant Woman or infants ~~whom~~ enrolled with the MDHSS case manager in Medicaid between March 31st, 2020 to September 30th, 2020 with the MDHHS case manager and then are referred to MIHP staff.

5. Stakeholders: County Community Members, Staff, Leadership, state government, Interns, Pregnant mothers on Medicaid, Infants born to mothers on Medicaid, MDHHS, state Medicaid

Implementation Framework

- PDSA



(IHI, 2020)

CDC Framework for Program Evaluation

(CDC, 1999, 2018)

Implementation Strategies & Elements

Powell et al. (2015) Strategies	DNP Student:
• Build a coalition • Inform local opinion leaders • Promote adaptability • Promote Network weaving	1. Worked with team members at the HD MIHP and MDHHS on logistics, processes, and data collection before and during implementation of "warm handoff". Attended staff meetings and participated in one-on-one meetings with MIHP supervisor
• Assess for readiness and identify barriers and facilitators • Tailor strategies	2. Performed organizational assessment and develop SWOT identifying barriers of the organization while determining readiness of "warm handoff" implementation
• Capture and share local knowledge • Conduct local consensus decisions	3. Performed literature review of current knowledge of "warm handoffs" within healthcare and ensure processes within the "warm handoff" are effective

Implementation Strategies and Elements Cont.

Powell et al (2015) Strategies	DNP Student:
• Use data experts	4. Collaborated with a GVSU grad statistics student to analyze quantitative and qualitative data from the implementation
• Audit and provide feedback to the organization • Identify early adopters	5. Summarized data from the implementation. Analyze qualitative survey results from MIHP and MDHHS staff
• Facilitate relay of clinical data to providers • Inform local opinion leaders • Purposefully examine the implementation	6. Disseminate results to MDHHS and the HD. Submit work to Scholarly Works, making the data available

Evaluation & Measures (handout)

Topic	Concept	How Measured	When Measured	Who Measures
Evaluation Strategies	Assess for organizational sustainability through evaluation of the organization's ability to sustain the "warm handoff" pilot program.	Discussion with MDHHS and HD MIHP by evaluating pre/post shared between the two organizations.	Post-implementation starting after Oct. 1st, 2020 once the IRB is approved	Student, MIHP supervisor, and site mentor
	Engage Stakeholders	Discussion with MDHHS and MIHP staff during in-person staff meetings, one and one meetings with the Director of Community Wellness and the MIHP supervisor.	Pre implementation of a program evaluation of the "warm handoff" pilot program	Student, MIHP supervisor, and site mentor
	Disseminate results from data analysis and provide recommendations to key stakeholders.	Feedback from MDHHS and MIHP via the survey results and share the data analysis.	Post-implementation (March 2021)	Student
Program outcomes	Enrollment in MIHP services. Compare between those enrolled in "warm handoff" and those enrolled through current avenues i.e. cold calling for 2019 and 2020.	EHR audit	Post implementation of pilot program (6-months retrospectively); (March 31st-Sept. 30th 2020) of 2019 and 2020	Student, site mentor, and MIHP supervisor
	Number of subsequent visits. Compare between those enrolled in "warm handoff" and those enrolled through current avenues i.e. cold calling for 2019 and 2020	EHR audit	Post pilot program implementation (10/1/2020- 3/12/2021)	Student, site mentor, and MIHP supervisor
	Barriers to Enrollment	Three question qualitative staff survey	Post pilot program implementation	Student. Site mentor, and MIHP supervisor
System Outcomes	Revenue	Review monthly revenue of MIHP program	Pre and Post pilot program implementation	Student, site mentor, and MIHP supervisor
	Was the "warm handoff" successful, resulting in enrollment	EHR audit	Post pilot program implementation	Student, site mentor, and MIHP supervisor
Policy Outcome	Evaluate if "warm handoff" program was incorporated as a standard policy for the HD MIHP.	Review of program policies	Post pilot program implementation	Student, site mentor, and MIHP supervisor

Ethical Considerations

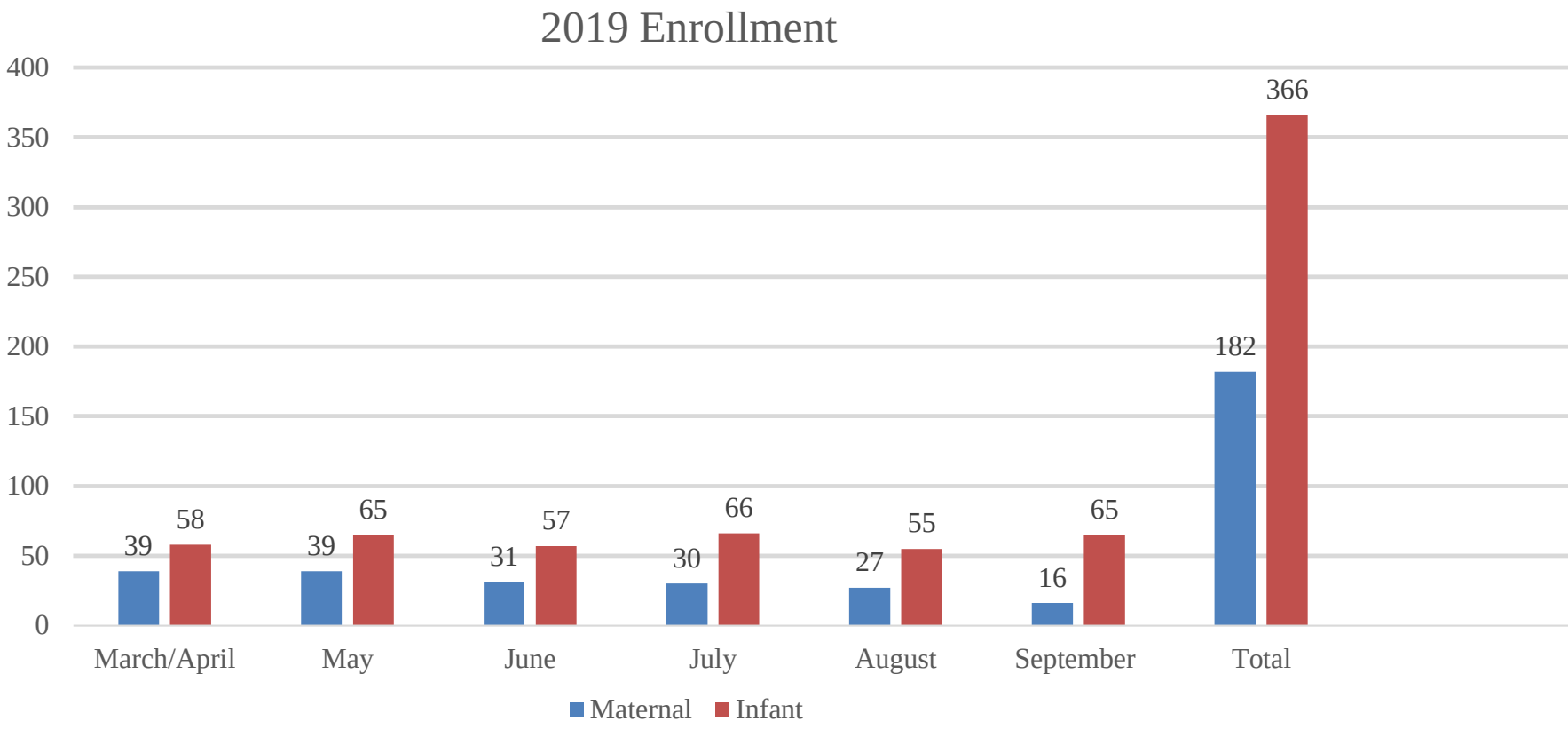
- Informed Consent signed at the time of enrollment in MIHP obtained by MIHP staff
- HIPPA approved EMR systems used for entering enrollees and subsequent visits
- No Identifying data collected on participants
- DNP student project data stored on Excel sheet on the DNP student's computer.
- IRB approval letter describing the project and "warm handoff" attained

Timeline

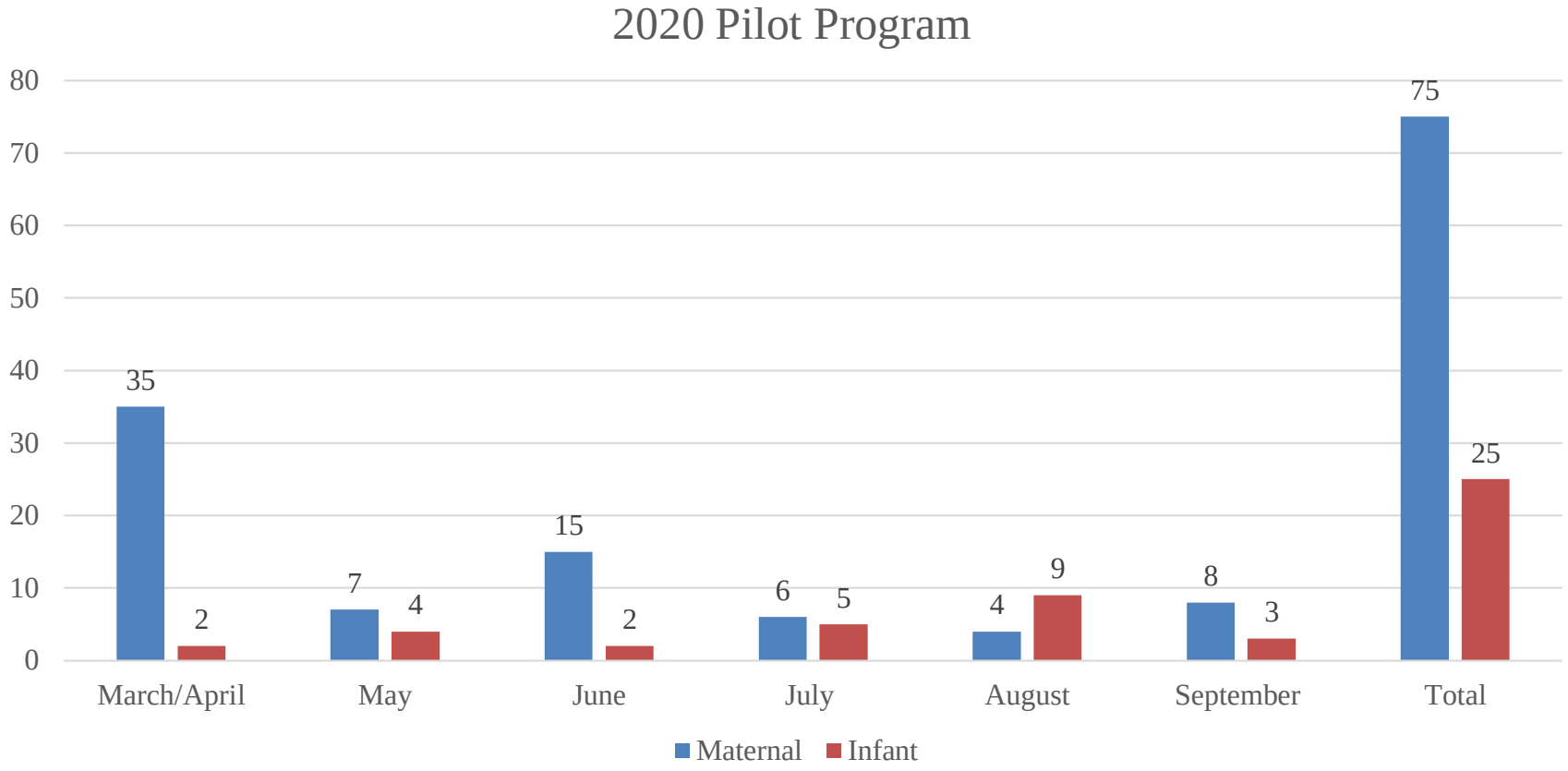
	Start Date	Stop Date	Nov. 2020	Dec. 2020	Jan. 2021	Feb. 2021	Mar. 2021	April 2021
Oral Defense	Nov. 6, 2020	Nov. 6, 2020						
Administer Staff Survey	Jan. 19, 2021	Feb. 8, 2021						
Start EHR data collection and survey analysis	Feb. 8, 2021	Feb. 12, 2021						
Complete data collection and survey analysis	Feb. 12, 2021	Feb. 28, 2021						
Analyze Results	Feb 28, 2021	March 12, 2021						
Disseminate Findings	March 7, 2021	April 15, 2021						
Sustainability Plan	March 25, 2021	April 15, 2021						
Proposal Defense	April 15, 2021	April 15, 2021						

Results

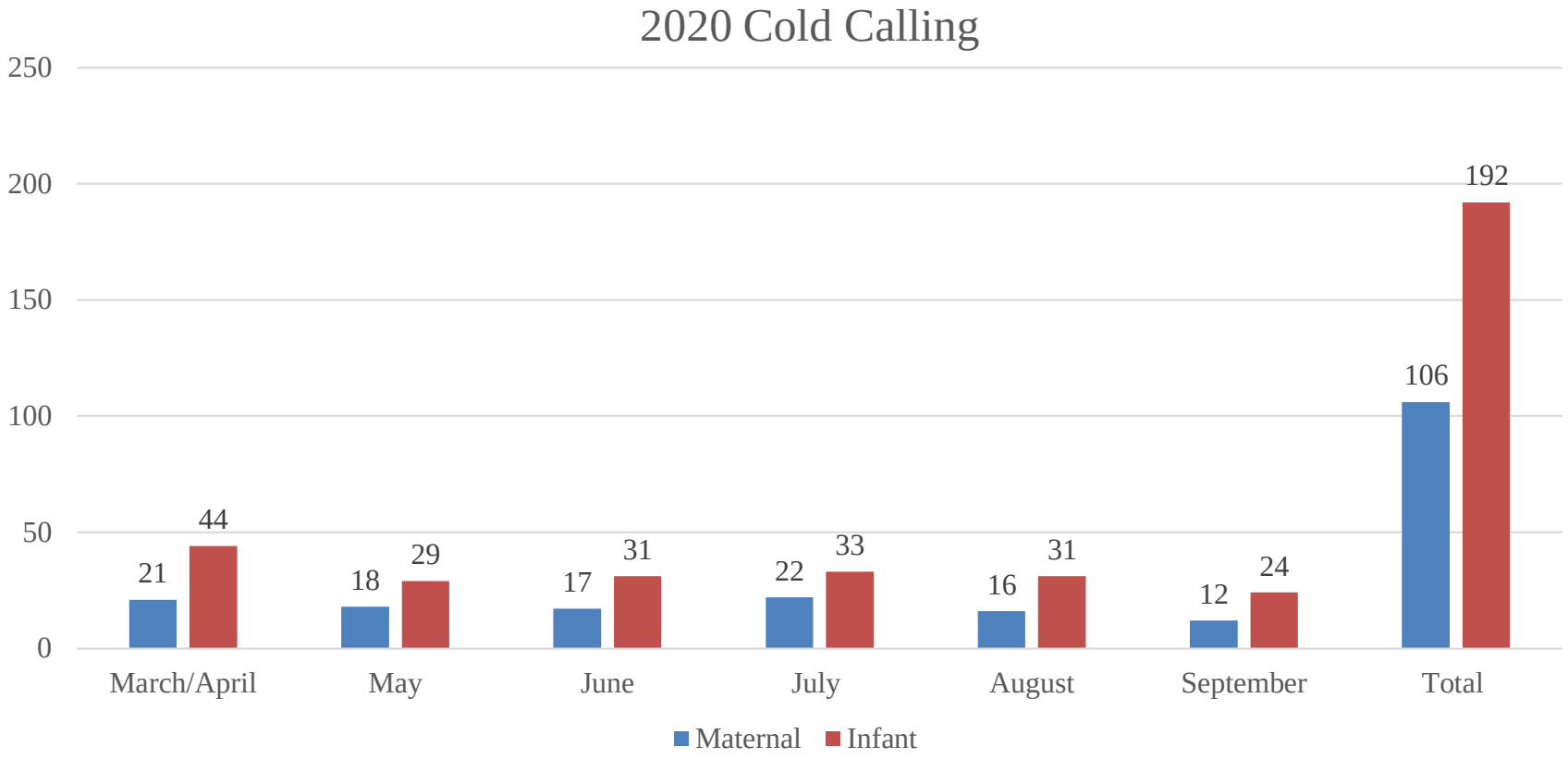
Results: 2019 Enrollment



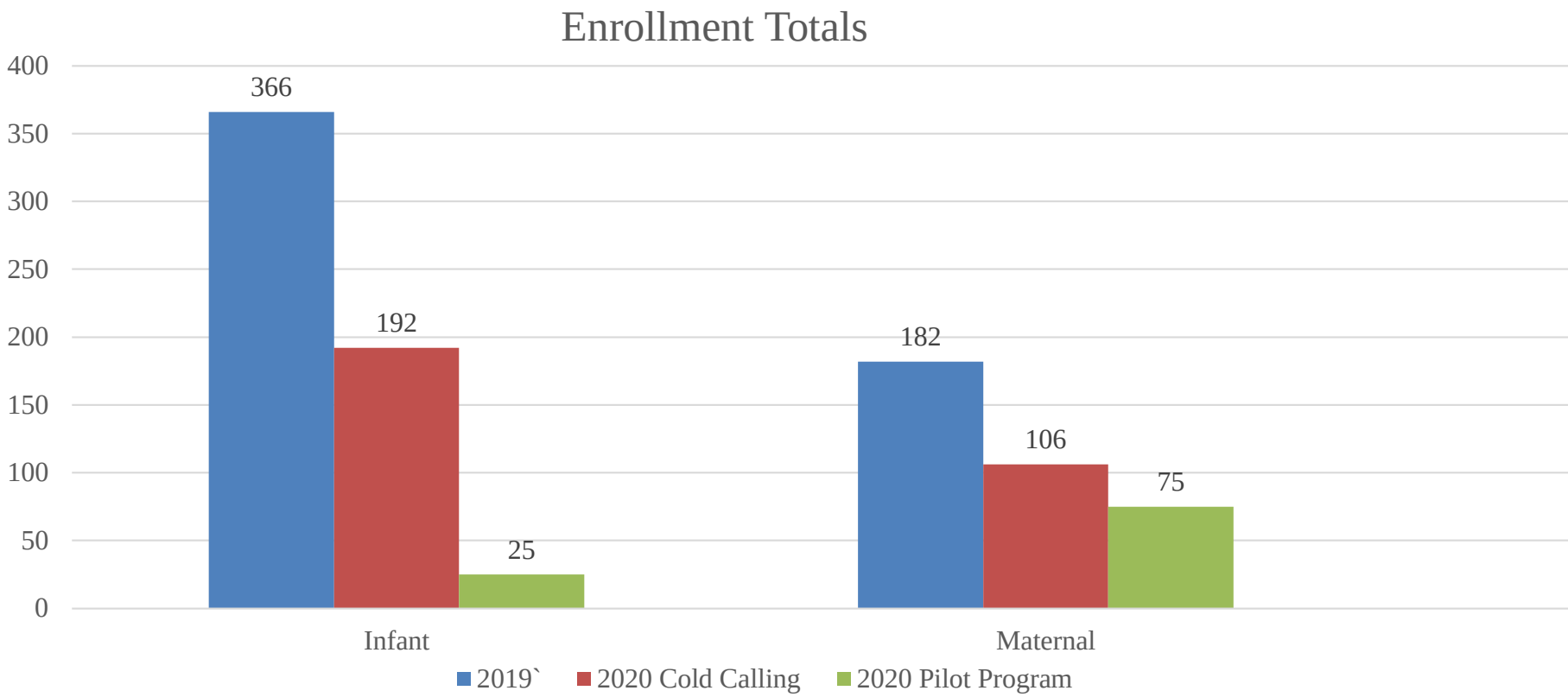
Results: 2020 Pilot Program Enrollment



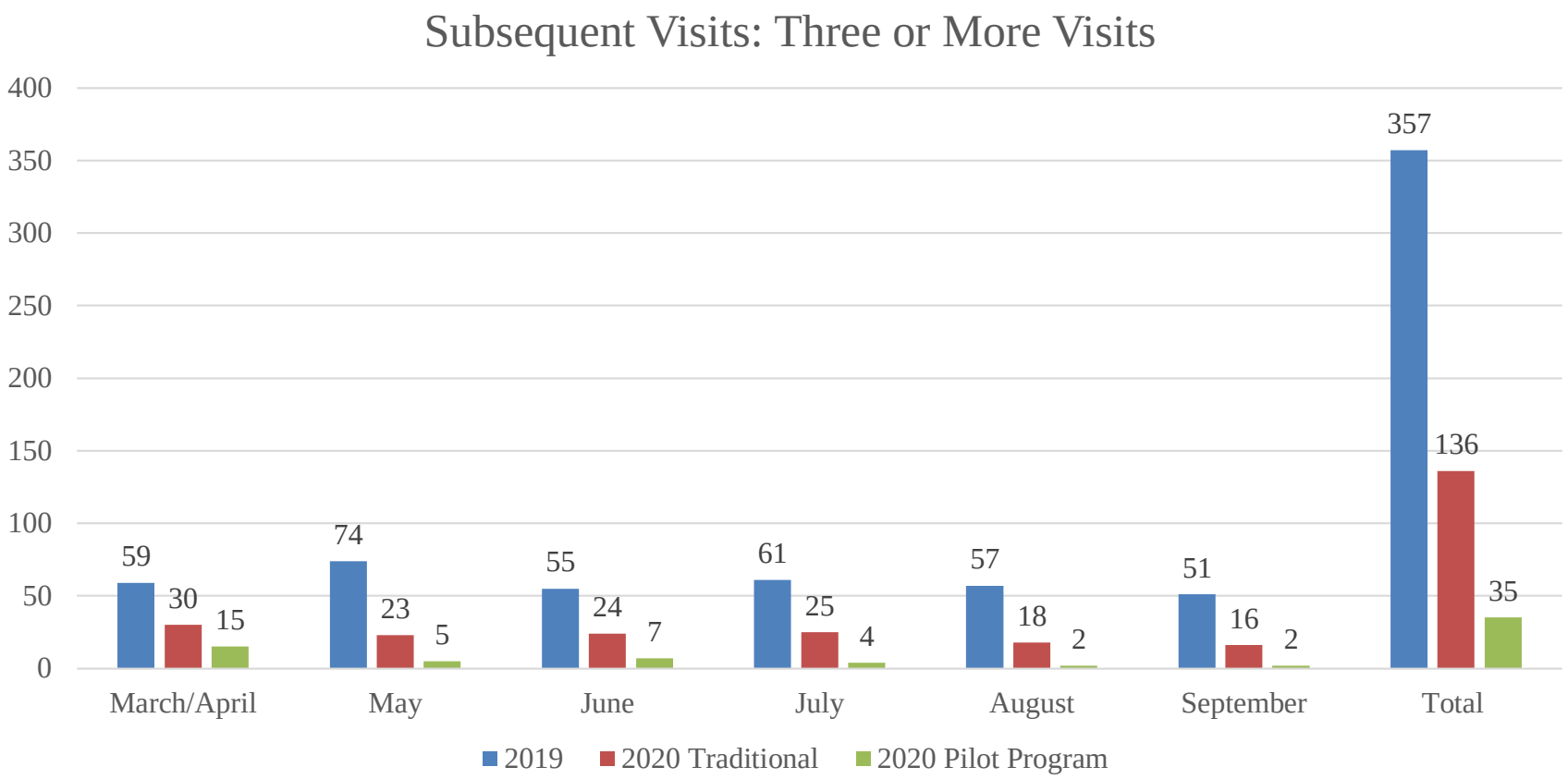
Results: 2020 Traditional Enrollment or Cold Calling



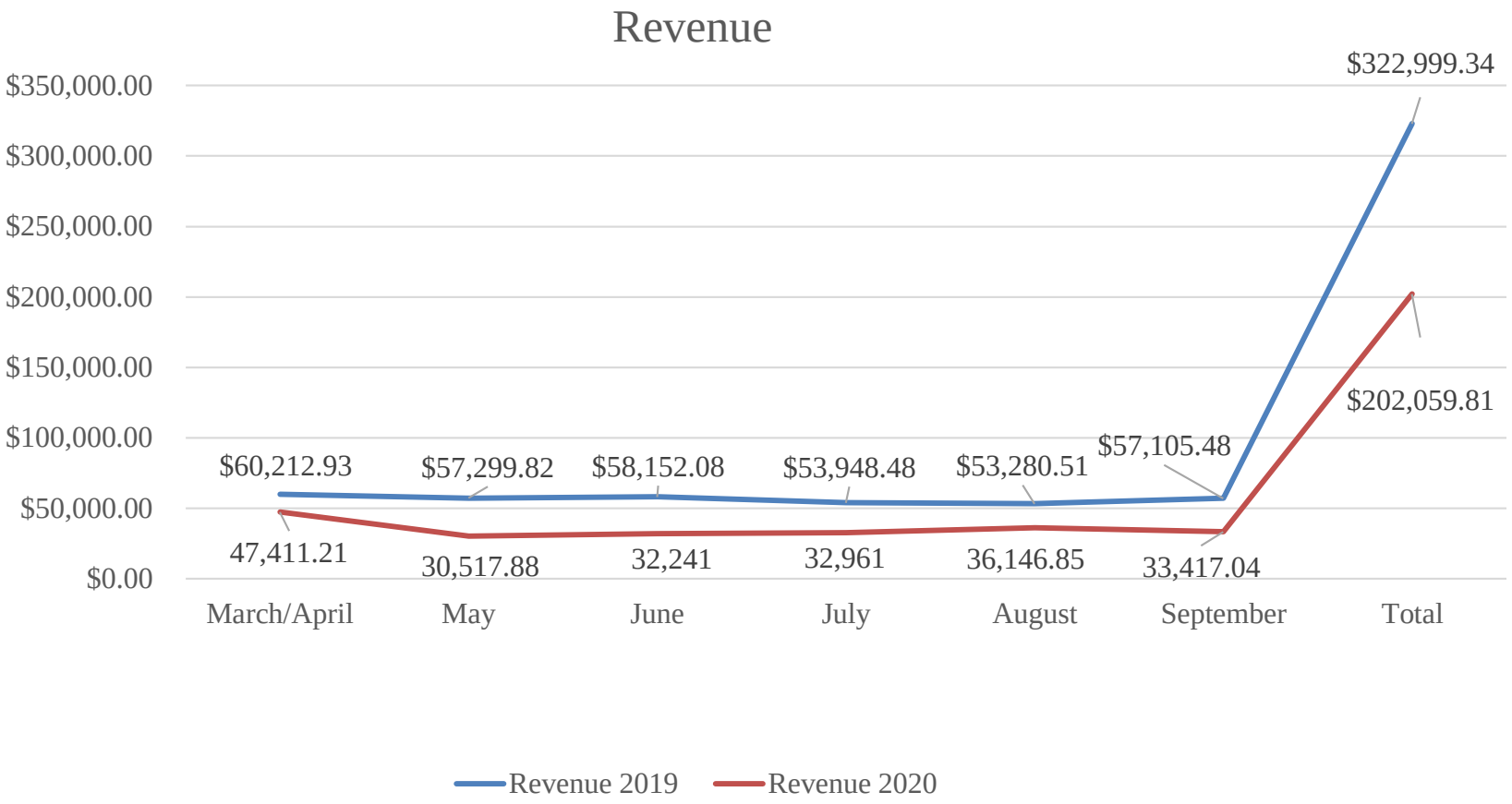
Enrollment: Infant and Maternal Totals



Results: Subsequent Visits



Results: Revenue



Analysis Plan

- Wilcoxon Signed Rank Test
  - Revenue (months and total in 2x2 table)
- Data Percentage Change Calculations
  - Pre/Post for enrollments and subsequent visits. Percentage of those who participated in 3 or more visits in pilot as this is the number shown to produce evidence-based results from MIHP services
- Survey Themes
  - Survey sent to 16 MIHP and 1 MDHHS staff member

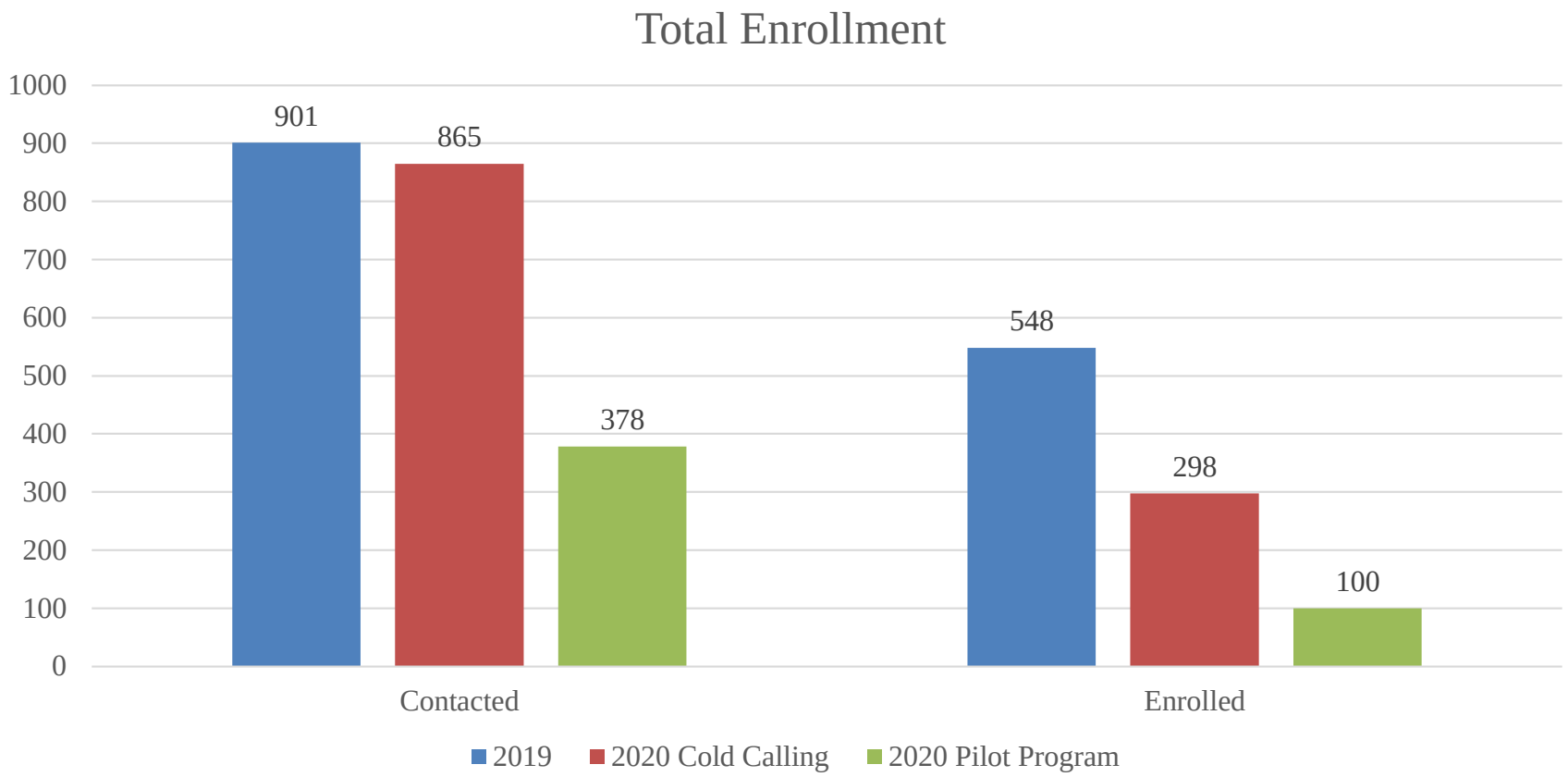
Analysis: Total Enrollment

2019: 901potential clients were contacted, and 548 clients enrolled in MIHP services equaling 60.8%

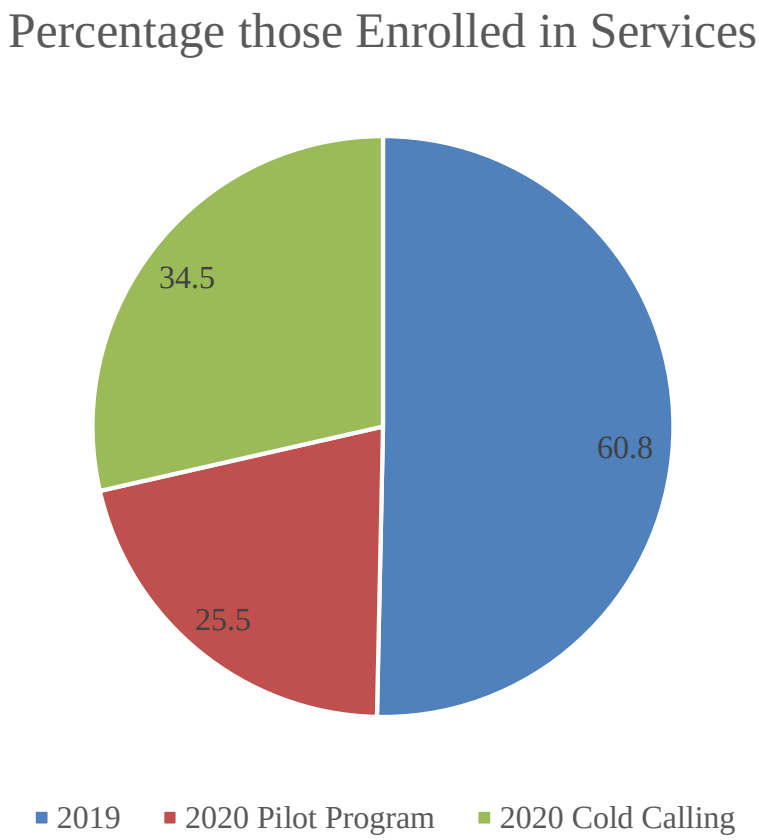
2020 Pilot Program: 378 potential clients were contacted, and 100 clients enrolled in MIHP services equaling 25.5%.

2020 Cold Calling: 865 potential clients were contacted, and 298 clients enrolled in MIHP services equaling 34.5%.

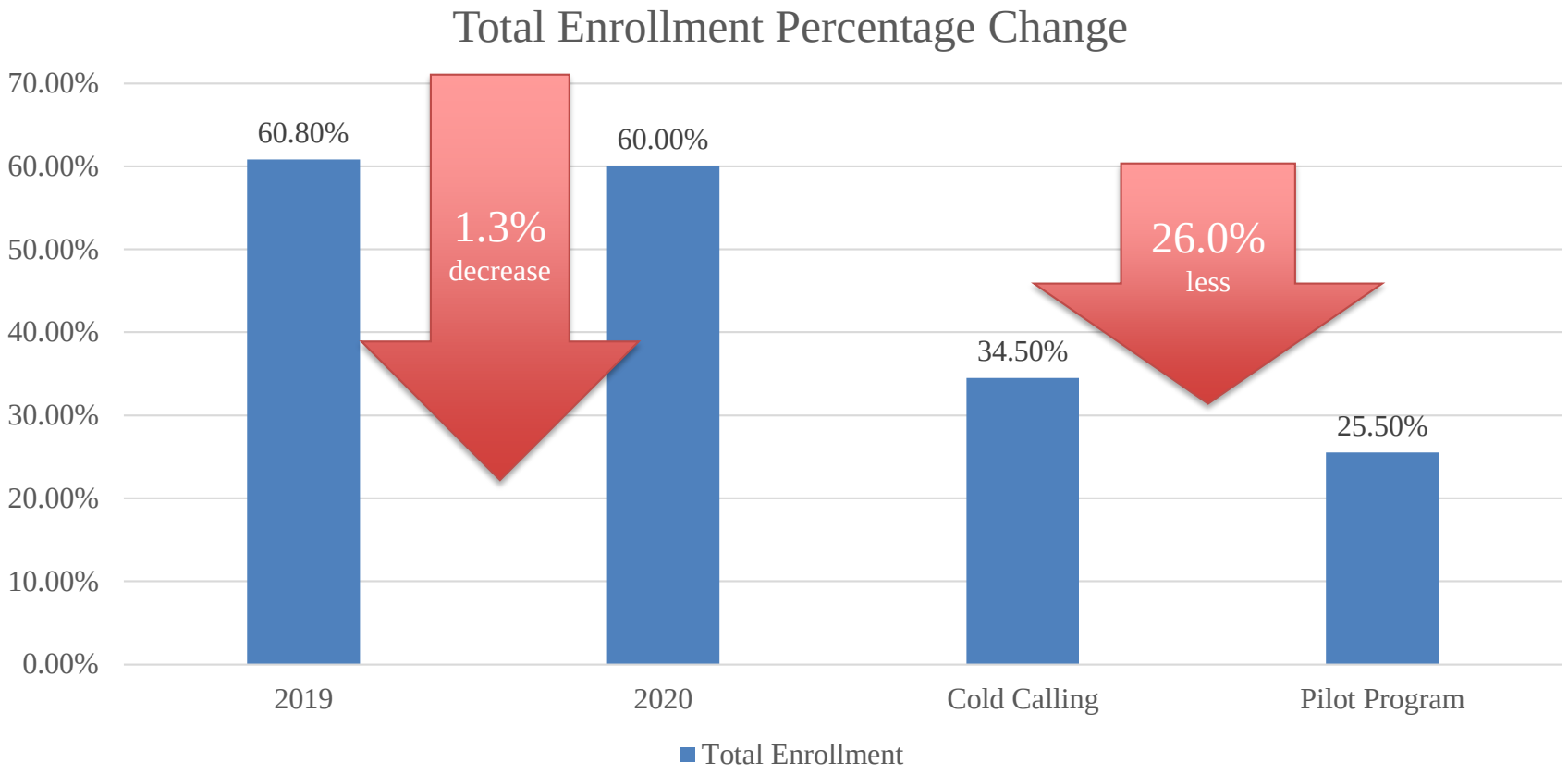
Analysis: Total Enrollment



Analysis: Total Percentage Enrolled



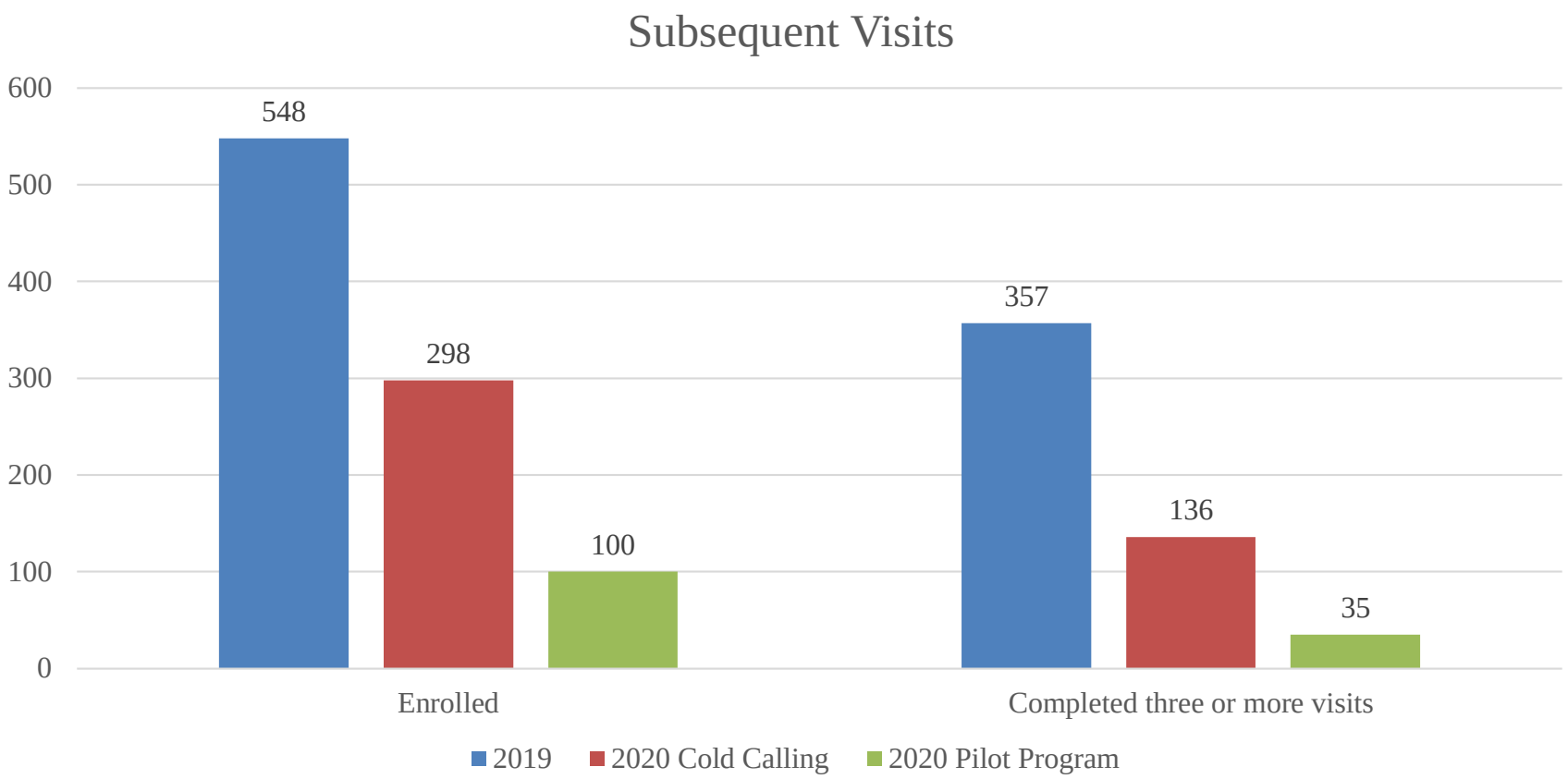
Analysis: Percentage Change: Enrollment



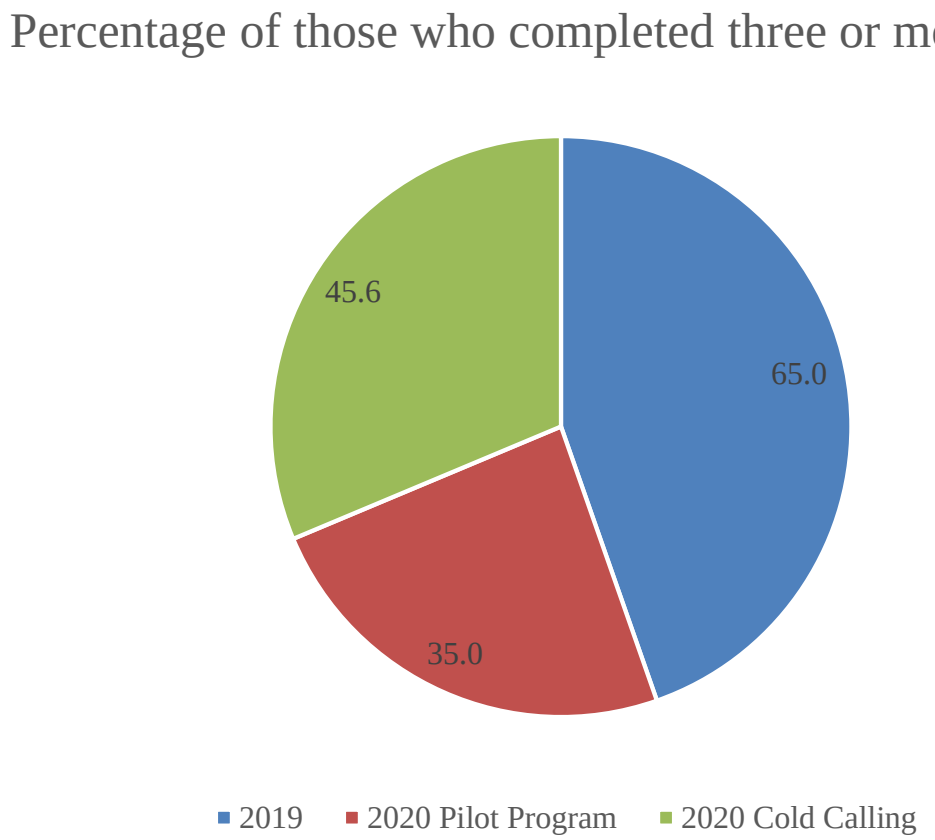
Analysis: Subsequent Visits

- **2019:** 548 clients enrolled and 357 completed three or more visits equating to 65.0%.
- **2020 Pilot Program:** 100 clients enrolled and 35 completed three or more visits equating to 35.0%.
- **2020 Cold Calling:** 298 clients enrolled and 136 completed three or more visits equating to 45.6%.

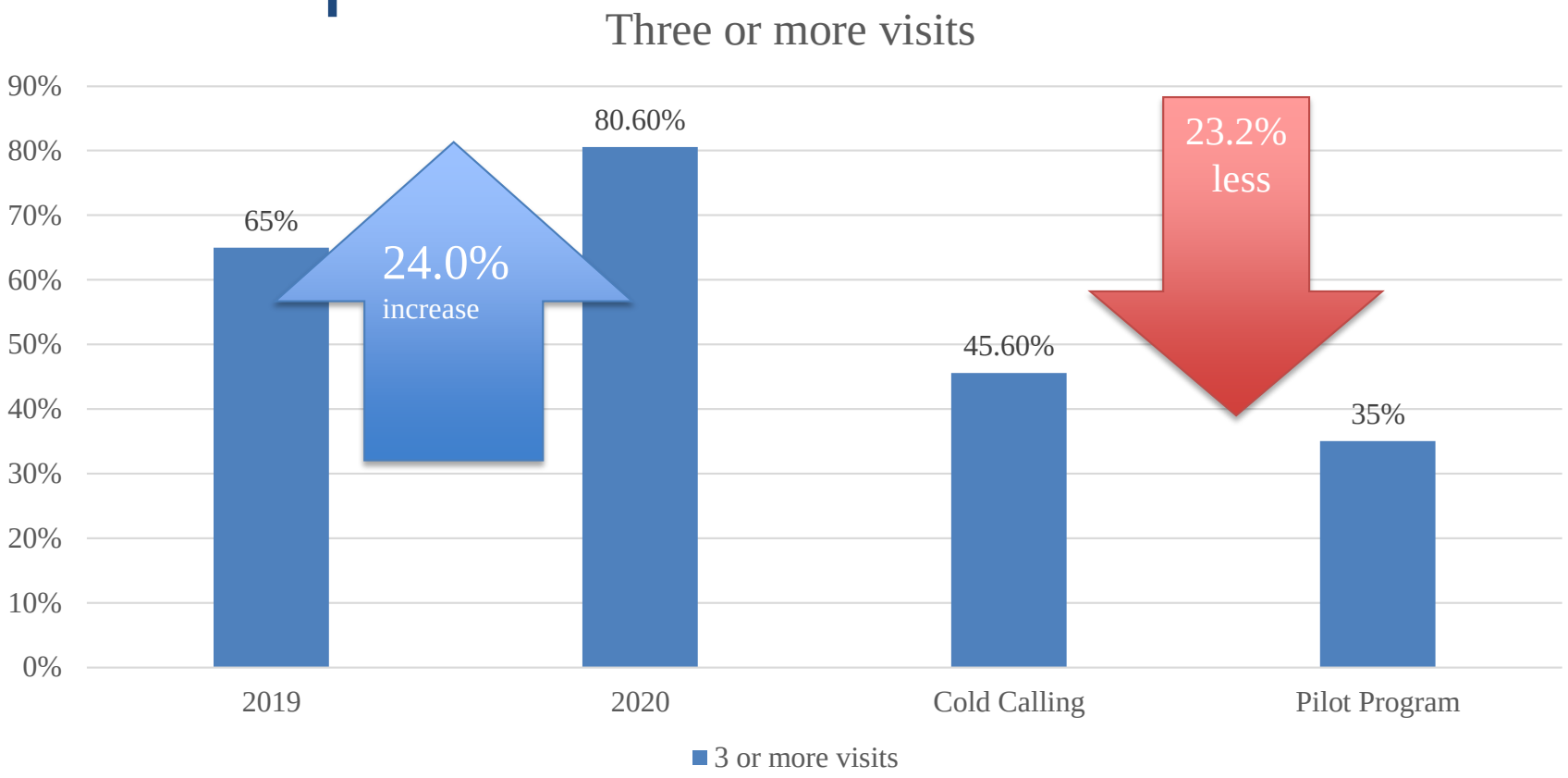
Analysis: Subsequent Visits Graph



Analysis: Subsequent Visits Graph



Analysis: Percentage Change: Subsequent Visits



Analysis: Revenue: 2019 and 2020

Wilcoxon Signed Rank Test

- Z: -2.201b
- Asymp. Sig. (2-tailed): p-value of .028
- Significant
- 2019 Total: $323,297.68
- 2020 Total: $213,755.24

Analysis: Survey Results

- **Q1. Has the "warm handoff" been successful for your client appointments? Please explain below**

Answer Summary:

- Overall, most employees agreed the "warm handoff" was successful in reaching families who would've otherwise not enrolled
- Helpful for initial enrollment but not subsequent visits
- Clients don't realize it takes about 45 minutes for enrollment

Analysis: Survey Results Cont.

- **Q2. Are there perceived barriers to enrolling mothers in the MIHP/MDHHS Pilot Program? If Yes, please list below**

Answer Summary:

- Moms don't quite understand what the program entails or how long the services last for
- Telehealth
- Keeping a client outside of the employees assigned area
- Clients think they will lose their Medicaid benefits if they say no.

Analysis: Survey Results Cont.

- **Q3. Are there perceived barriers when scheduling subsequent visits with enrolled MIHP clients? Please explain below**

- Telehealth
- Mothers don’t answer the phone for subsequent visits
- Changing schedule for MIHP healthcare workers due to COVID-19

Discussion

- Revenue significantly decreased from 2019 to 2020
- Enrollment and subsequent visit results were not statistically significant
- Results aligned with current literature i.e. “warm handoffs” are effective, but more research needs done to show statistically significant results (Musselman et al., 2018; Richter et al., 2016).
- Results from the survey provides insight for MIHP and MDHHS to improve processes within the pilot program.

Limitations for the Project

- COVID-19
- DNP student unable to attend visits in-person
- Data collection from old EHR, Insight

Implications for Practice

- All clients may not have a favorable attitude towards enrolling in services. (Boston University of Public Health ,2019, Ajzen, 1991).
- Address Barriers
- Investment from stakeholders
- Effective implementation

Proposed Budget & Resources

Cost Mitigation if poor health outcome of Mother/child are prevented	
NICU stay for preemie	Up to $450,000/per birth
Nationwide savings per non-preterm birth	$713.78

Expenses for Implementation of Project	
Hourly rate for MIHP Worker	$29/hr. 14 hours/week x 24 weeks
Case Manager	$39/hr 14 hours/week x 24 weeks
Program Evaluation by DNP student License Access to EHR for DNP student	$0 $1,000
Supplies (postage, envelopes, paper)	$250
Total Expenses	$24,098

Cost Mitigation of 10 NICU Admissions Prevented	$4,500,000

Sustainability Plan

- Warm Handoff program will be incorporated as a policy and standard practice by MDHHS and HD MIHP.
- Achieve buy-in from key stakeholders.
- Project will be sustained by the handoff of information from the DNP student to the MIHP supervisor, MDHHS, and MIHP workers.
- Financial resources, i.e. staff, training, client education materials will be embedded in budget for program to run long-term for MDHHS and the HD MIHP.

Recommendations

- Recommend the future need for a DNP student to complete 1- and 2- year program evaluation and work towards implementation of the pilot at other MIHPs in the state of Michigan.
- Provide training on the effectiveness and purpose of a “warm handoff” in healthcare for future new employees working in the pilot program.
- Create educational material for clients at time of enrollment appointment describing MIHP including, how many visits the program entails, and information on how declining enrollment doesn’t affect Medicaid enrollment status.

Summary

1. Evaluation of “warm handoff” program
2. Present findings to key stakeholders
3. Ensure sustainability plan is initiated for the continuation of the program and disseminate results

DNP Essentials

DNP Essentials

I. ***Scientific Underpinnings for Practice***

- Evaluated the "warm handoff" initiative to improve enrollment and client outcomes at the Health Department
- Used scientific theories and frameworks to guide the implementation of the project

II. ***Organizational and Systems Leadership for Quality Improvement and Systems Thinking***

- Revised MIHP training manual
- Attended weekly Incident Command leadership meetings and community meetings
- Conducted a comprehensive organizational assessment
- Created a cost analysis of the "warm handoff" intervention

III. ***Clinical Scholarship and Analytical Methods for Evidence-Based Practice***

- Collected data on "warm handoff" pilot program using Patagonia EMR system
- Analyzed data on "warm handoff" pilot program using statistical analysis
- Entered and comprise DHS pilot program data
- Performed literature review of best practices for "warm handoffs"

DNP Essentials Cont.

IV: ***Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care***

-Evaluated the 'warm handoff" program using informational technology i.e Patagonia

- Used SPSS 24 to analyze data

V. ***Health Care Policy for Advocacy in Health Care***

- Aligned onboarding manuals for MIHP to align with State and national policies
- Worked alongside the MIHP supervisor to ensure the "warm handoff" implementation meet the COVID-19 guidelines

VI. ***Interprofessional Collaboration for Improving Patient and Population Health Outcomes***

- Worked alongside the MIHP supervisors to improve onboarding policies, collect data, and work to initiate the "warm handoff" program
- Worked with MIHP workers to update client educational pamphlets
- Attended interprofessional meetings between MDHHS and MIHP regarding the "warm handoff" implementation

DNP Essentials Cont.

VII. ***Clinical Prevention and Population Health for Improving the Nation's Health***

-Collaborated with MIHP supervisors to initiate the "warm handoff" program to ultimately improve the outcomes of mothers and infants with the Health Department's county.

- Researched evidence-based information for the client educational pamphlets to improve prenatal and postnatal care and outcomes

-Analyzed data on birth outcomes and home visiting programs related to MIHP services

VIII. ***Advanced Nursing Practice***

-Analyzed results within he "warm handoff" program to advance the nursing policies within MIHP

-Created a sustainability plan for the "warm handoff" program once the DNP student has completed the immersion experience.

-Will disseminate findings of "warm handoff" program through the DNP student's project defense

Handouts

- Literature review table
- Data collection tool for EHR data
- Data collection tool for financial evaluation
- Staff Survey results

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