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**Public Health Assessment Division
Health Promotion and Wellness Directorate**

**A Mixed Methods Assessment of Army Patient Centered Medical Home and
Army Wellness Center Collaboration at Carlisle Barracks, Pennsylvania**

July 2016 – September 2016

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1 Summary

1.1 Overview

The U.S. Army Public Health Center (APHC) conducted an evaluation at Carlisle Barracks to assess the nature and extent of collaborative efforts to coordinate patient care between Patient Centered Medical Home (PCMH) staff and Army Wellness Center (AWC) staff. The evaluation team distributed a survey to PCMH staff members July–August 2016 and conducted semi-structured interviews with both PCMH and AWC staff members to assess their knowledge, attitudes, and behaviors related to their collaboration with one other. Survey results showed that PCMH staff members generally had knowledge of and positive attitudes toward the AWC and its staff members, although formal collaborative action between them was less common.

1.2 Purpose

The purpose of this assessment is to examine the nature and extent of collaborative efforts to coordinate patient care between the Army PCMH and AWC at Carlisle Barracks.

1.3 Evaluation Objectives

This evaluation was designed to:

- Identify the extent to which PCMH and AWC staff members are aware of each other's services provided and staff competencies.
- Identify the barriers and facilitators experienced with the referral process and the use of Army Medicine Secure Messaging System (AMSMS) between PCMH and AWC staff members.
- Differentiate between formal (documented) versus informal (undocumented) patient referrals.

1.4 Key Findings

Both PCMH and AWC staff members demonstrated awareness and knowledge of each other's services and had a favorable impression of each other, although additional communication would have helped PCMH staff members with some misunderstandings. PCMH staff members requested more marketing of AWC services.

PCMH staff members were aware they could make referrals to the AWC and many had done so, but they also reported numerous barriers to referral, citing time and patient load; only referring patients who were ready to make a change; and misunderstandings about the assessment process

or services provided. However, AWC staff members reported both facilitators and barriers to referral. Facilitators included:

- Face-to-face interaction and feeling unified with PCMH staff members;
- Teaching PCMH staff members how to make referrals to the AWC;
- Placement on the new provider check-in sheet;
- PCMH staff members using AWC services themselves; and
- Outside and/or leadership endorsement of the AWC.

Barriers to collaboration from the perspective of AWC staff members included:

- Lack of guidelines about when to refer clients to the PCMH specialists or primary care and about information to send back to the PCMH once a client has been seen
- Lack of information about classes and services provided at the clinic
- Inability to formally refer clients to the PCMH.

Both AWC and PCMH cited staff turnover as a barrier to referral.

PCMH staff members were more likely to make informal referrals than formal referrals and were more likely to follow the published referral guidelines when making informal referrals. They reported making informal referrals by simply informing patients about the AWC. PCMH staff members were less likely to make formal referrals than informal referrals because they only made them for patients with a high readiness to change or because the Armed Forces Health Longitudinal Tracking Application / Composite Health Care System (AHLTA/CHCS) was difficult and/or time consuming. AWC staff members made informal referrals to the PCMH as well by recommending the client call their doctor, calling for a client to make an appointment, or walking clients over to the clinic in emergencies. AWC staff members reported tracking informal referrals from PCMH and having a high referral booking rate.

Few PCMH staff members and no AWC staff members reported use of secure messaging. This was largely because AWC staff members were unaware of the details of secure messaging, and because PCMH staff members perceived that secure messaging was only used to communicate with patients, not staff. PCMH staff members felt that using secure messaging was time consuming, and use was often delegated to nurses instead. Other barriers to PCMH staff members using secure messaging included inconvenience, difficulty accessing AMSMS, and not having an AMSMS account.

AWC staff members mostly initiated face-to-face communication with PCMH staff members. Communication typically took place in huddle meetings, provider briefs, or when co-teaching classes. The AWC Project Lead (PL) and Health Promotion Technician were conduits to PCMH communication. PCMH staff members suggested that communication could be improved by increasing the frequency of briefings and giving training on referral criteria and methods.

1.5 Recommendations

The APHC offers the following recommendations to support future collaboration efforts to coordinate patient care between the PCMH and AWC. To improve collaboration AWC staff members and AWC Operations should—

- Increase marketing to PCMH staff members and potential clients. Consider an open house for providers.
- Increase face-to-face interaction with PCMH staff members, including communication about referrals.
- Ensure new AWC staff members are introduced to PCMH staff members.
- Ensure that new PCMH staff members are included on the in-processing checklist.
- Provide referral guidelines to AWC staff members and communicate them to PCMH staff.
- Allow AWC staff to make formal referrals back to the PCMH.
- Consider standardized requirements of formal document referrals from PCMH to AWC in AHLTA/CHCS.
- Consider expanding referral criteria from the PCMH to the AWC to encompass the range of AWC core programs.

2 References

See Appendix A for a list of references.

3 Authority

Army Regulation (AR) 40-5 (25 May 2007) *Preventive Medicine* directs the U.S. Army Center for Health Promotion and Preventive Medicine (currently known as APHC) to conduct periodic evaluations of regional and local preventive medicine programs and services in support of the U.S. Army Medical Command (MEDCOM) oversight responsibilities (paragraph 2-19.j. page 14).

MEDCOM Operational Order (OPORD) 12-17. Implementation of AWCs directs the APHC to establish enterprise oversight for developing, planning, monitoring, and evaluating standardized AWC programs and services across the MEDCOM (section 3c(1)(a), page 4).

U.S. Army Public Health Command (USAPHC) Technical Guide No. 335. U.S. Army Wellness Center Installation Implementation Guide (Annex A to OPOrd 12-17) guides the Public Health Assessment Division (PHAD) within the APHC to conduct program evaluations of AWCs based on public health principles (section 7, page 5).

MEDCOM Memorandum of Agreement (MOA), Subject: The Implementation of the USAPHC Health Promotion Initiatives on Army Installations (Annex B to OPOrd 12-17) directs APHC to evaluate the effectiveness of AWCs (section 5(3)(c) page 3).

Annex to the PCMH Operations Manual provides guidelines for synchronizing the PCMH with the AWCs and outlines how the APHC will work with the Army Public Health Regional Health Commands (RHCs to monitor standards and ensure program effectiveness).

AR 600-63 (14 April 2015) *Army Health Promotion* states that Army Health Promotion should include evaluation of Army Health Promotion programs (section 1-6.b(4)), of which Army Wellness Centers are one considered one.

4 Background

4.1 Unhealthy Lifestyles within the Military

Unhealthy lifestyles and behaviors are not conducive to military preparedness. The risk of being overweight and obese increases with the following factors: Insufficient sleep, inadequate physical activity, poor dietary habits, and chronic stress (U.S. Department of Health and Human Services (HHS), 2001, 2010; Jean-Louis et al., 2014; Scott et al., 2012). This can eventually increase lifetime risk of developing various behaviorally mediated weight-related conditions and chronic diseases, including heart disease, stroke, diabetes, high blood pressure/hypertension, certain cancers, asthma, and arthritis (Mokdad et al., 2003; Booth et al., 2012). Unhealthy behaviors have also been repeatedly associated with reduced productivity, increased absenteeism and presenteeism, and unsustainable health care spending (Cancelliere et al., 2011; Robroek et al., 2010; Dall et al., 2007). The Centers for Disease Control and Prevention (CDC) (CDC, 2015) report that chronic diseases and health risk behaviors account for most of the cost of health care in the U.S.

Unhealthy lifestyles, behaviors, and weight related issues are highly prevalent among Active Duty Army Soldiers and can increase their risk of becoming medically nondeployable. Members of the Armed Forces, regardless of service branch, report higher tobacco use and binge drinking (Barlas et al., 2013) than non-Service members. Specific to the Army, recent reports (Barlas et al., 2013) estimate only about 38 percent of Active Duty Army personnel report getting the recommended minimum of 7 hours of sleep per night on average (National Heart, Lung, and Blood Institute (NHLBI), 2011), and nearly half of Active Duty Military (42%) averaged less than 5 hours per night (Mysliwiec et al., 2013). This sleep deprivation may continue even after military separation, with 35 percent of Veterans reporting less than 7 hours of sleep per night (Faestel et al., 2013).

Physical activity recommendations are either 150 minutes of moderate intensity exercise per week or 75 minutes of vigorous intensity exercise per week (Barlas et al., 2013). Approximately 69 percent of Active Duty Army personnel have met moderate intensity goals, and even fewer (57%) met vigorous intensity exercise goals (HHS, 2008). Three-quarters (75%) of Soldiers met the recommendation to engage in muscle strengthening activities twice a week or more (HHS, 2008). While the majority of Soldiers have met activity goals, improvements should continue to increase readiness and resiliency of the Army force in order to meet mission demands.

Engagement in healthy nutrition practices is also low among Active Duty Army personnel. Only 11 percent consume 3 servings of fruit per day and only 4 percent consume 3 servings of vegetables per day. Even more alarming, 14 percent rarely or never consume fruits and vegetables. The U.S. Department of Agriculture (USDA) recommends at least 4 cups of fruits and vegetables per day (USDA and HHS, 2010).

Finally, Active Duty Army personnel have the highest percentages of overweight and obese personnel (67.7%) among all of the Active Duty Armed Forces (Barlas et al., 2013). This is very similar to the rates of overweight and obese civilians (68.8%; (Ogden et al., 2014), and Active Duty military may be more likely to be overweight than civilians (Eilerman et al., 2014). Unfortunately, trend analyses indicate that overweight and obesity prevalence is on the rise (Reyes-Guzman et al., 2015) in Active Duty Military in general, and in the Army in particular (Hruby et al., 2015), and may continue increasing. The high prevalence of obesity in the Army not only affects the health

outcomes of individual Soldiers, but can also have an impact on the readiness of the entire Army force. One study found that a high body mass index (BMI) puts Soldiers at risk for all-cause or medical discharge within their first year of Army service (Packnett et al., 2011). Data suggest a sizable percentage of the Active Duty Army population could benefit from increasing healthy behaviors and decreasing unhealthy weight.

Further, 33 percent of Military Dependents (i.e., Family members) are obese (Ogden et al., 2014), which is of concern, because healthy habits and behaviors are often shared within families. This is in large part due to the “built” environment, in which families share the same physical space that is able to influence their health behaviors (Roof, 2008). If Military Families share the same living space, it is likely that the same factors influencing Dependents to have unhealthy weight will also affect Active Duty Service members. Military Families also play a large role in keeping Service members ready. Resilience often comes from strong social bonds, which a healthy Military Family can provide, and keeping Family Members safe and healthy means that Soldiers are less likely to be distracted from their mission by familial concerns.

Unhealthy behaviors are modifiable and intervention can mitigate the risk of developing behaviorally-mediated weight-related conditions and chronic diseases. Improvements in diet and physical activity are associated with reductions in overweight/obesity and risk of developing various weight-related chronic conditions (Wadden et al., 2004; Willet, 2002; CDC, 2009; Willett et al., 2006; Cohen, et al., 2007; CDC, 2012). In addition, multiple studies have shown a dose-response relationship between sleep and BMI and between stress and chronic disease (Singh et al., 2005; Cohen et al., 2007), indicating that when people decrease their total sleep time, they are more likely to be obese.

In response to the high prevalence of unhealthy behaviors, the U.S. Army Surgeon General (TSG 43) led a paradigm shift in Army health to move the Army’s reactive, disease-focused health care system toward a more proactive system for health. This system for health would focus on promoting healthy behaviors to prevent disease. In MEDCOM OPORD 12-17, the Surgeon General directed APHC to support this paradigm shift by developing, implementing, standardizing, and evaluating the AWC model.

4.2 The Army Wellness Center Model

AWCs utilize an individual-level health education model that supports primary, secondary, and tertiary prevention by helping Army community members, including Active Duty Soldiers, Family members, Retirees, and Department of the Army (DA) Civilians, to increase their healthy behaviors and reduce their risk factors for chronic, behaviorally-mediated conditions. The AWCs’ mission is to provide standardized services that promote healthy lifestyles and improve the overall well-being of Army community members.

APHC developed the AWC model (Hoover and Campbell, 2010) in accordance with the best practices in worksite health promotion programming identified by the Community Preventive Services Task Force (Soler et al., 2010). After scaling this model to serve a globally distributed force, APHC began standardizing, implementing, monitoring, and evaluating the AWC model at Army installations in the U.S. European and Pacific Theaters in 2011. This work is ongoing in coordination with the Regional Health Centers (RHCs).

The AWC model is delivered at AWC facilities staffed with health educators (HEs) with backgrounds in allied health fields. Further, HEs hold certifications from credentialing agencies meeting National Commission for Certifying Agencies standards. These agencies include the American College of Sports Medicine (ACSM), the National Commission for Health Education Credentialing, and the National Strength and Conditioning Association. Staff members are trained to deliver a set of six core programs to improve clients' health status, including health assessment review (HAR), physical fitness, healthy nutrition, stress management, tobacco education, and general wellness education (see Figure 1). In delivering these programs, staff members assess clients' health risks and provide individualized health assessments along with feedback, health coaching, and health education to help Army community members improve their overall health status (Rivera et al., 2016).

Evaluation of the AWC model began in 2011, with retrospective evaluation of the five AWCs operational before November 2011. These two evaluations showed that AWC participation is associated with significant improvements in clients' body mass index, blood pressure, strength, flexibility, and cardiorespiratory fitness (USAPHC (Prov), 2011; Castillo, 2012). A third more rigorous evaluation in 2016 evaluated a total of 22 AWCs active before September 2013. It substantiated initial findings, demonstrating that those clients who followed up within 1 year with an AWC improved their risk factors for disease, including decreasing their body fat percentage, BMI, perceived stress, and blood pressure, and increasing healthy nutrition behaviors and cardiorespiratory fitness (Army Public Health Center (Provisional) (APHC (Prov)), 2015).

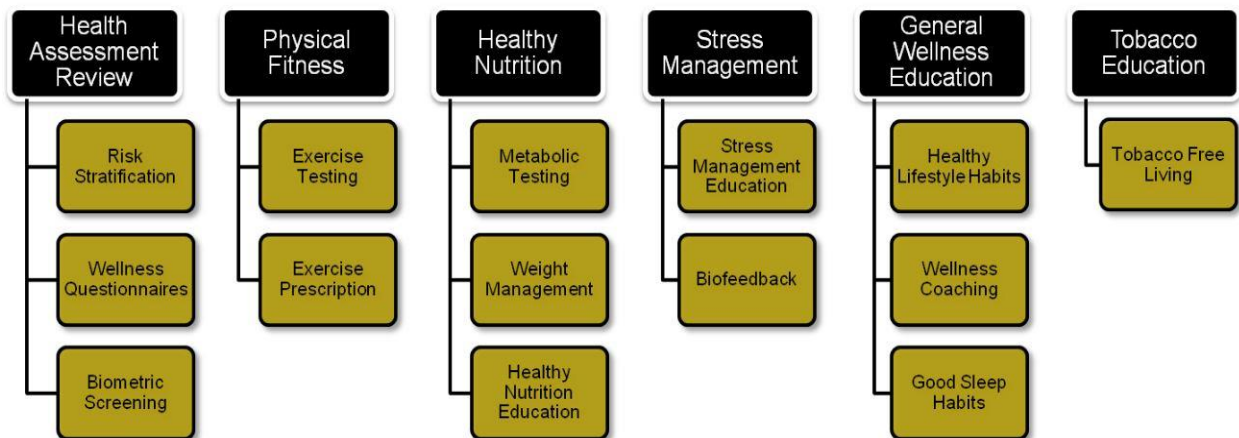


Figure 1. Diagram of the Six Core Programs Delivered as Part of the AWC Model

Because evidence suggests that those who receive physician-initiated lifestyle change counseling are more likely to report positive behavior change (Logsdon et al., 1989), AWCs are aligned under military treatment facility (MTF) commanders in primary care at their respective installation. This was meant to facilitate collaboration between AWC and MTF healthcare delivery systems.

4.3 The Army Patient Centered Medical Home Model

The model for healthcare delivery in Army MTFs is the PCMH. Although the PCMH concept was first introduced by the American Academy of Pediatrics in 1967, it only has become popular in

recent years. The Family Medicine specialty adopted PCMH in 2002, primary care physician societies endorsed it in 2007 (Hudak et al., 2013), and over 1,500 civilian clinics have been recognized as PCMH by the National Committee for Quality Assurance (NCQA) as of 2010 (Hunter and Goodie, 2012). The Army began PCMH adoption in 2011 and completed implementation in 2015, changing the name from PCMH to Army Medical Home (AMH). Because the Army serves many different clienteles, there are other terms related to PCMH that are used throughout the Army, such as, SCMH or Soldier Centered Medical Home, and CBMH or Community Based Medical Home. However, the term PCMH is still widely used and recognized in the field, and will continue to be used for continuity, both within the Army and the Civilian sector.

Within primary care, the PCMH is the foundation of health and readiness for Military Health System (MHS) beneficiaries and is an important component of the Army's transition toward a proactive system for health (MEDCOM/OTSG, 2014a; MEDCOM/OTSG, 2014b). The PCMH is designed around the principle of "putting patients first." It is a healthcare model that allows patients to partner with a Primary Care Manger (PCM)-led team of health care professionals as needed, including physician's assistants, registered nurses, licensed practical nurses (LPNs), and administrative staff. The patient's family can even be included when appropriate and desired (Christensen et al., 2013). This team helps develop a comprehensive, patient-centered healthcare plan. The PCM organizes the team and ensures appropriate screening, prevention, treatment, and wellness services are synchronized to maintain continuity of care. At its heart, the PCMH model represents a move away from fragmented, uncoordinated patient care toward coordinated, collaborative patient-centered care.

The PCMH model is intended to improve patient outcomes and reduce costs. Although current evidence suggests there is wide variation in how the PCMH model is implemented and evaluated, literature generally shows that the PCMH model improves patient care. In the civilian sector, multiple systematic reviews have examined whether PCMH use is associated with expected outcomes. A systematic review conducted by Williams et al. (2012) identified an association between PCMH use and positive experiences reported by patients and staff, with metrics such as perceived care coordination and staff retention rates. Three studies provided preliminary evidence that the PCMH is associated with reduced inpatient treatment and emergency department utilization. Another review conducted by Hoff et al. (2012) identified a positive association between PCMH use and quality of care, as indexed by enhanced prevention and chronic disease management. A majority of studies included in this review showed that PCMH use was associated with reduced emergency department utilization as well.

Within the U.S. Military, several studies have examined associations between the implementation of the PCMH and expected outcomes. A study conducted by Savage et al. (2013) at an MTF compared access to care, emergency department visits, population health screening, and staff satisfaction before and after implementation of the PCMH model. Improvements were identified across all measures; results showed an increase in access to care, a decrease in emergency department utilization, improvements in screening rates for asthma, diabetes, and breast, cervical, and colorectal cancer, and a high level of staff satisfaction. Another study conducted by Christensen et al. (2013) focused on the Army's PCMH model specifically. Results showed that PCMH use was associated with reduced costs, improved access, improved quality (as measured by Healthcare Effectiveness Data and Information Set (HEDIS) variables), and improved patient satisfaction, especially for patients with chronic conditions.

Unlike the civilian sector, the Army has attempted to standardize implementation and evaluation of the PCMH model. A clinic can only become an Army PCMH when it meets a practice readiness

assessment threshold, earns NCQA recognition at Level 2 or higher, and completes a staff assessment visit conducted by the RHC. Continued monitoring of each PCMH is done with the PCMH Organization Inspection Program (OIP) checklist bi-annually and with practice-level measures of effectiveness monthly. The following are the six standards to uphold: patient-centered access; team-based care; population health management; care management and support; care coordination and care transitions; and performance measurement and quality improvement.

4.4 Collaboration Between PCMH and AWC

By 2011, MEDCOM implemented or had plans to implement the MHS PCMH model in development in 180 Army PCMH practices (Hudak et al., 2013). In 2013, MEDCOM sought to enhance the prevention and wellness capabilities of the Army PCMH model through synchronization with the AWC. MEDCOM formalized this collaboration between PCMH and AWC in the *AWC Annex to the PCMH Operations Manual*. The goal of this Annex was to establish AWCs as the health education arm of the PCMH, and it outlines how Army PCMH and AWC staff can collaborate to identify patients who were interested and could benefit from AWC services. PCMH staff members would then facilitate patient engagement with AWC staff members, who would then ensure reach-back to PCMH staff members as appropriate. Patients would remain engaged with their Army PCMH team for their primary care needs, with additional health assessment, health coaching, and health education support from the AWC team. PCMH and AWC collaboration began at the Fort Carson and Carlisle Barracks MTFs.

PCMH staff members were instructed to use a screening process to identify and refer patients who might benefit from AWC services. Key elements of the screening process include the following:

- The participation of AWC staff members in regular PCMH team huddle meetings to identify patients who might benefit from lifestyle modification;
- Objective measurement and documentation of BMI ≥ 30 by PCMH staff members;
- Inquiry about whether patients are interested in additional education and support;
- Identification of patients' readiness to change their exercise and nutrition habits; and
- Preparation of a referral to the AWC.

While the PCMH nursing team can conduct several steps in the above screening process, the patient's PCMH is ultimately responsible for reviewing the case and making a referral decision. PCMH staff members should refer their patients to the AWC using the standard referral process in the AHLTA / CHCS, and both PCMH and AWC staff members are encouraged to use AMSMS as a secure, electronic means to communicate with each other and with their patients/clients to collaborate on patient healthcare plans. In addition, AWC staff member participation in Medical Home huddle meetings is encouraged. Through screening, huddle participation, formal referral, and use of AMSMS, PCMH and AWC team members should be able to coordinate follow-on care for patients as needed.

The APHC initially evaluated the AWC/PCMH collaboration model at Fort Carson (APHC (Prov), 2016). This evaluation found that although the PCMH staff members at Fort Carson had high awareness and knowledge of AWC services, few collaborative activities were taking place. Less than half (43%) of PCMH staff members formally documented referrals to the AWC in AHLTA/CHCS, although they understood the *AWC Annex* referral criteria; nearly half (46%) stated that AWC staff members never attended huddle meetings; and 72 percent of PCMH staff members never used AMSMS.

The findings from this evaluation led to recommendations for further improving AWC/PCMH collaboration. The initial evaluation recommended that AWC staff members brief more frequently to PCMH staff members; that AWC staff members highlight their expert knowledge and credentialing in health promotion and behavior change; that barriers and facilitators to AMSMS use and huddle meeting inclusion be explored; and that the referral process should be investigated in more depth. The present evaluation at Carlisle Barracks builds on the lessons learned from the Fort Carson evaluation and addresses some of the above recommendations.

4.5 Current Purpose

The purpose of the current project is to examine the nature and extent of collaborative efforts to coordinate patient care between PCMH staff members and AWC staff members at Carlisle Barracks. The primary objectives for the evaluation were to:

- Identify the extent to which PCMH and AWC staff members are aware of each other's services provided and staff competencies.
- Get to know the barriers and facilitators experienced with the referral process and the use of AMSMS between PCMH and AWC staff members.
- Differentiate between formal (documented) versus informal (undocumented) patient referrals.

5 Methods

5.1 Evaluation Design, Survey Development, and Data Collection

The APHC Public Health Review Board (PHRB) reviewed the project plan (#253-13.M1) for this evaluation and approved it as public health practice. This evaluation took a mixed-methods approach, with both qualitative and quantitative data collected. Program evaluators used an online survey to assess PCMH staff members' knowledge, attitudes, and behaviors related to their collaboration with the AWC. In addition, program evaluators conducted semi-structured interviews with both AWC and PCMH staff members at Carlisle Barracks. Qualitative data allowed for further details and explanations. Qualitative data was also used to give voice to AWC staff members. Because there were only five AWC staff members located at Carlisle Barracks, it did not make sense to survey them. Table 1 presents an overview of the mixed methods design, which shows the topics that each method covers, the total number of participants for each section, and the timeframe for data collection. Both the survey and the structured interview guides were based on an iterative process that involved the identification of themes, adaptation of question wording, and verification of response option relevance. This process helped ensure that survey questions and response options were relevant and meaningful to the PCMH and AWC staff members at Carlisle Barracks.

Table 1. Summary of Mixed Methods

Topics	Number of Items on Data Collection Tool to Assess Topic		
	PCMH Survey July – August 2016	PCMH Interviews August – September 2016	AWC Interviews May 2016
Awareness of Services and Staff Competencies	8	7	4
Barriers and Facilitators to Referrals	7	3	6
Formal/Informal Referral Exploration	7	6	0
Secure Messaging	4	0	0
Communication	0	7	7
Demographics	5	0	0

5.1.1 Quantitative Methods

This evaluation used a cross-sectional, post-test only design. A 30-item survey (Appendix B) was used to examine PCMH staff members' knowledge of, attitudes toward, and behaviors related to collaboration with the AWC approximately 2 years after collaboration between the two entities was formalized. APHC program evaluators developed and pilot tested the survey in consultation with the Deputy Commander of Clinical Services, the Deputy Commander of Clinical Nursing Services, the Deputy Commander for Health Readiness, and the Army Wellness Center PL at Carlisle Barracks.

The survey was distributed online via Verint[®] Enterprise software (Melville, New York) to all PCMH staff members working at Carlisle Barracks between 11 July 2016 and 12 August 2016. The Carlisle Barracks AWC mentor initially sent the survey link via email (see Appendix C) to all PCMH staff members on 11 July 2016, but the Clinic Commander followed this up on 25 July and 4 August 2016. The email requested and encouraged staff members to complete the survey. PCMH leadership confirmed a total of 35 staff members across all clinics during this data collection period. All PCMH staff members were encouraged to complete the survey by 12 August 2016, and there were no responses submitted after close of business on 12 August 2016. Please note that all *Ns* are valid *Ns*.

5.1.2 Qualitative Methods

Program evaluators conducted semi-structured interviews to gain additional information about the project objectives. Table 1 above outlines the number of items per topic covered for the interviews. For the AWC staff member interviews ($n = 5$), program evaluators asked 17 questions about their perceptions of and interactions/communication with PCMH staff members, as well about their referrals to the PCMH (Appendix E). For the PCMH staff member interviews ($n = 5$), program evaluators asked 24 questions about their perceptions of and interactions/communication with AWC staff members, as well as about the processes of formal and informal referrals to and from the AWC (Appendix D). Semi-structured interview questions were intended to provide detail to the four evaluation objectives. Five AWC and five PCMH staff members each volunteered to participate after being informed by the MTF Commander and/or AWC Operations about the opportunity to be

interviewed. AWC staff members included three health educators, a health promotion technician, and a PL. PCMH staff members included one of each provider: physician's assistant, dietitian, nurse practitioner (NP), physician, and clinical pharmacist. All interviewees verbally consented to having written, nonpersonally identifiable, notes taken on their responses. Prior to interviews, verbal consent was given to audio record the interviews. Two PCMH staff members did not consent to being audio recorded, but did consent to being interviewed. Program evaluators conducted interviews via telephone for two PCMH staff members and five AWC staff members, and were audio recorded via the U.S. Army Medical Information Technology Center Video Network Center. Program evaluators conducted interviews in person at the MTF for three PCMH staff members and were audio recorded using a handheld digital audio recorder. The average length of interviews was 30 minutes, though some lasted as long as an hour. For the majority of interviews, one program evaluator served as the interviewer, and another served as a note-taker. Program evaluators transcribed recorded interviews verbatim from audio recordings, supplemented with written notes where applicable, analyzed, and reported without any individual identifying information attached to make it impossible to link interview responses back to specific individuals.

5.2 Data Management and Analysis

5.2.1 Quantitative

Program evaluators transformed responses from Verint Enterprise software to Statistical Analysis Systems (SAS) version 9.2 (Cary, NC) for cleaning, management, and analysis. Twenty-two out of an expected 35 individuals submitted survey responses, resulting in a survey response rate of 63 percent. However, of the original 22 responses, 4 were excluded from analysis for the following reasons: noncompletion ($n=2$) and nonconsent ($n=2$). As a result, only those responses from the remaining 18 individuals were considered for analysis.

Program evaluators calculated descriptive statistics to answer the evaluation objectives. Percentages were calculated using the total number of respondents eligible to answer each survey question as the denominator. There was some variability in the denominator used to calculate percentages across questions because some questions were intended only for a specific subgroup of respondents (e.g., only those respondents who have ever referred a patient to an AWC).

5.2.2 Qualitative

Program evaluators coded semi-structured interviews for AWC staff members and PCMH staff members separately, but used a similar process. They used a thematic analysis approach to manually code and theme transcribed semi-structured interview responses. Two PHAD evaluators individually created an iterative codebook based on the semi-structured interview transcriptions then came together for revision and consensus. Program evaluators created first order themes from the current evaluation objectives, to which an additional first order theme of communication was added; however, they derived all second and third order themes from the content of the interviews. After the evaluators reached consensus with a common codebook, program evaluators coded several interviews independently to determine similarities between the evaluators. Since program evaluators coded the majority of quotes similarly, the remaining interviews were themed by only one evaluator.

6 Results

6.1 PCMH Staff Survey Demographics

Most respondents (94%, $n = 17$) were from the primary clinic; one respondent chose “Other” and indicated that he or she abstained from associating themselves with a clinic. The majority of respondents were LPNs or 68Ws (Combat Medic) or Certified Nurse Assistants (56%, $n = 10$); followed by Physician Assistants (11%, $n = 2$) and Medical Support Assistants (MSAs) (11%, $n = 2$) each). The respondent who selected the “Other” category wrote that he or she preferred to remain uncategorized. No respondents indicated they were NPs, Pharmacists, Physical Therapists, Behavioral Health Providers/Consultants, or Administrative Personnel. Because PCMH administrative staff, medical assistants, and receptionists cannot see patients or make referrals, they ($n = 6$) were excluded from analyses of survey questions related to referring patients to the AWC.

6.2 Thematic Framework for Semi-Structured Interviews

PCMH staff member interviews were qualitatively themed for each objective (see Figure 2 below). An additional theme of “communication” emerged during semi-structured interview analysis that was inherently different from the other objectives. “Communication” encompasses the topics of mechanism for, and frequency of, communication between AWC and PCMH (see Section 6.7 for more details).

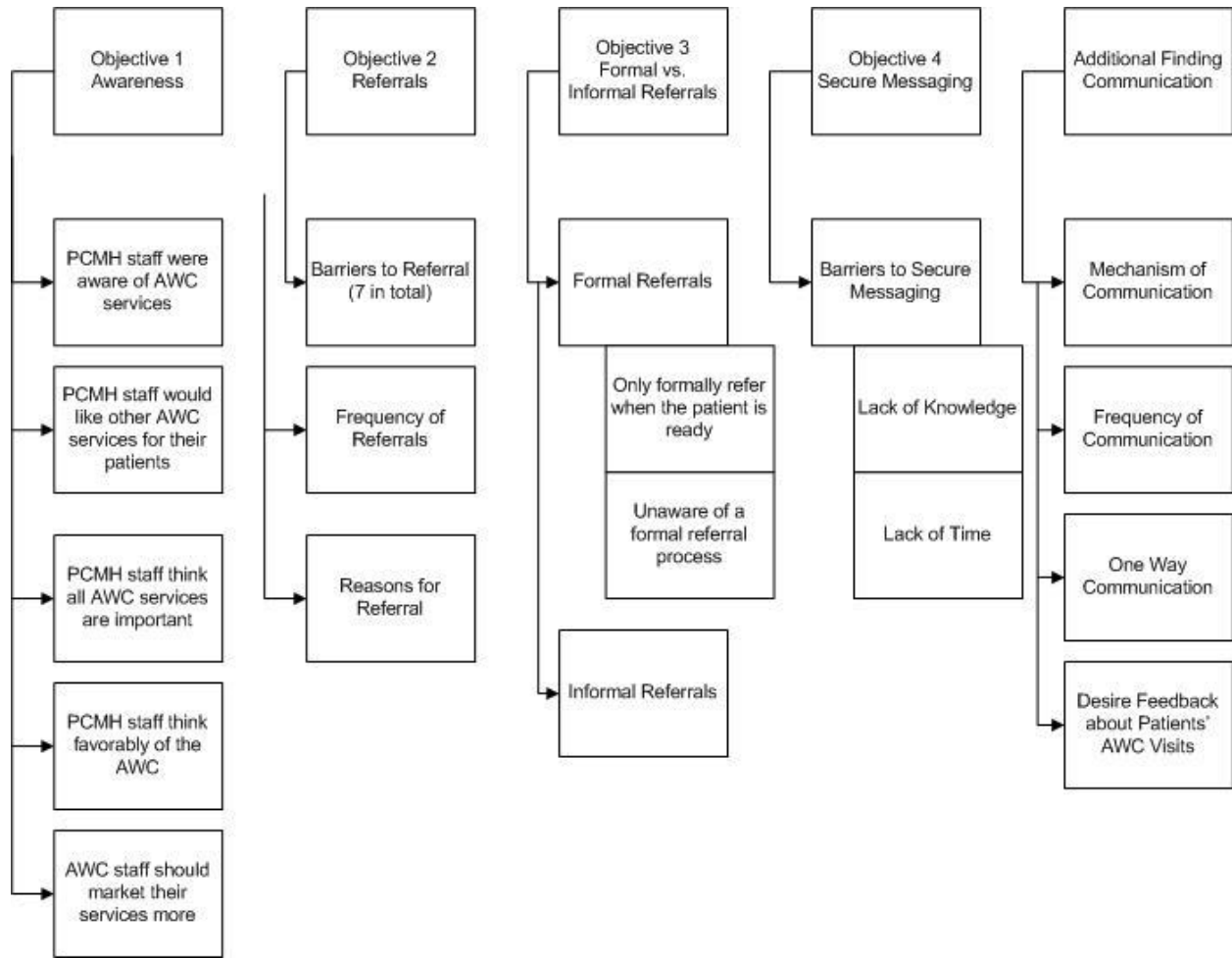


Figure 2. Themes for PCMH Staff Semi-Structured Interviews

Similar to Figure 2, Figure 3 shows AWC Staff interviews were qualitatively themed for each objective and the additional finding of communication. Together, these two figures serve as an overall framework with which semi-structured interview results will be discussed.

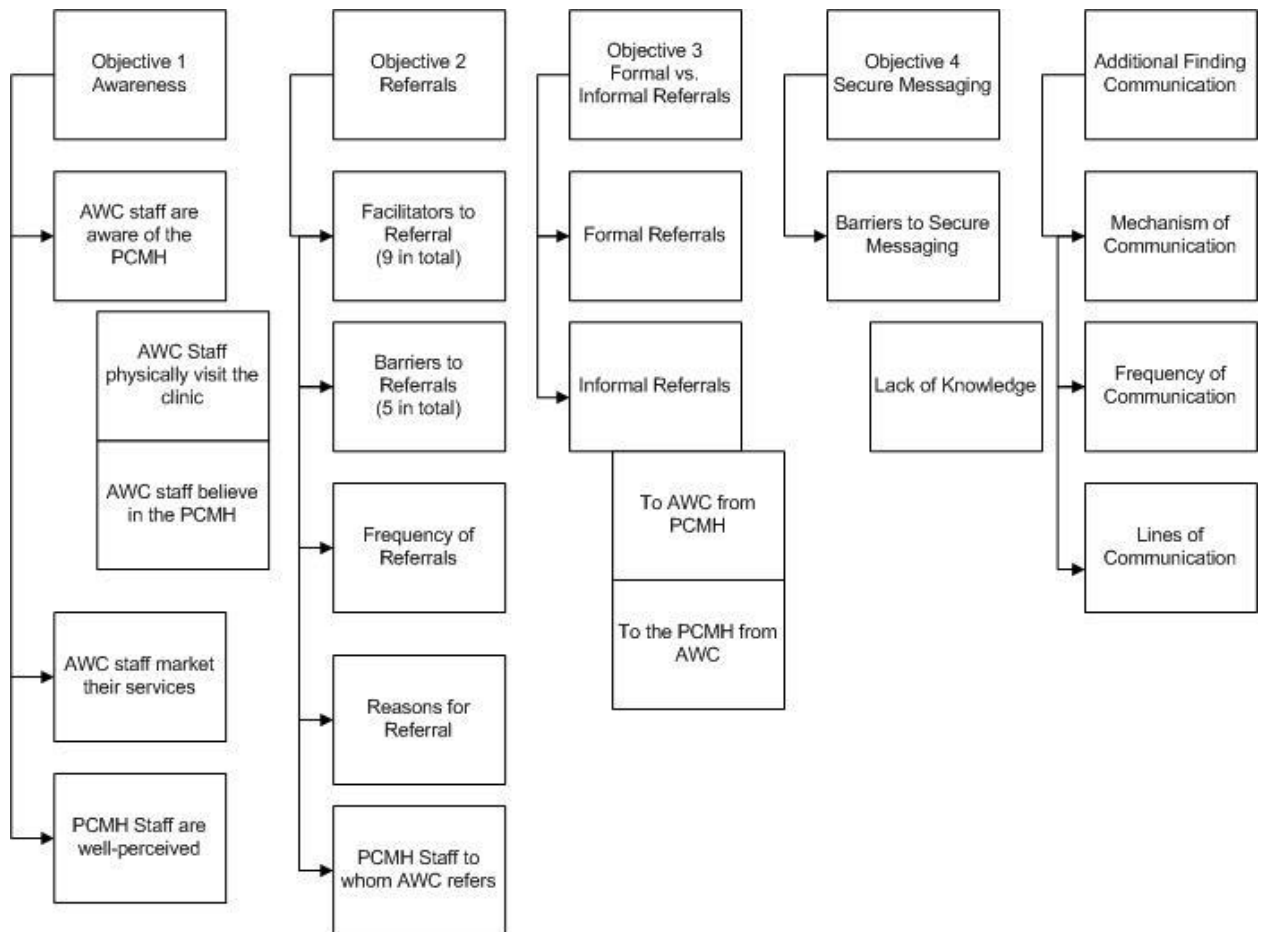


Figure 3. Themes for AWC Staff Semi-Structured Interviews

6.3 Identify the Extent to Which PCMH Staff and AWC Staff Are Aware of Each Other’s Services Provided and Staff Competencies

6.3.1 Results Synthesized Across Data Collection Methods

Both AWC and PCMH staff members are aware of each other’s services and had a vested interest in AWC staff members marketing their services. However, PCMH staff members were more likely to desire additional services, and additional marketing, while AWC staff members were content with what was currently taking place at their Wellness Center. Both staffs also had a positive impression of each other, although the sense of unity expressed by AWC staff members seemed unrequited by the PCMH staff members, and AWC staff members as a whole (regardless of their role in the AWC) were far more likely to physically visit the MTF than PCMH staff were to physically visit the AWC. This difference in visit frequency may be one reason why AWC staff felt that their facility was viewed as an outlying clinic.

6.3.2 PCMH Staff Survey Results

Results from the PCMH Staff Survey regarding the PCMH staff members' awareness of the AWC services and staff competencies are found in Table 2. All staff members who completed the PCMH survey were aware that Carlisle Barracks had an AWC (100%, $n = 18$), and 88 percent indicated that they were also aware of the services that AWCs provide ($n = 15$). To test this knowledge, providers were asked to select all of the core programs that AWCs provide. All providers correctly identified general wellness education as an AWC core program, and all correctly did not identify the programs of suicide prevention, drug rehabilitation, and alcohol counseling, since those three programs are not conducted by the AWC (all 100%, $n = 17$ each). However, providers were less sure of other AWC core programs, especially tobacco education, which was only correctly identified by 35 percent of providers ($n = 6$).

Nearly all PCMH staff members had been briefed at least once by AWC staff members (94%, $n = 17$). Of those who had been briefed by AWC staff members, the most common method of briefing was during a Medical Home Huddle (81%, $n = 13$), followed by Staff Meetings (69%, $n = 11$), and Provider Briefs (38%, $n = 6$). One provider indicated "other" and wrote that he or she was briefed in a Commander's Forum. The majority of providers who received an AWC staff briefing reported being moderately satisfied with that brief (50%, $n = 8$), followed by being slightly satisfied (38%, $n = 6$). Interestingly, although 81 percent of providers reported being briefed via a Medical Home Huddle, all respondents indicated that AWC staff members participated in Medical Home Huddle Meetings "Rarely" (88%, $n = 15$) or "Never" (12%, $n = 2$). In contrast, PCMH staff members were most likely to report that their own participation in Medical Home Huddle Meetings was "Often" (53%, $n = 9$).

PCMH staff members were also queried about how they first heard about the AWC. Results showed providers were most likely to first hear about the AWC from a unit commander, leader, or supervisor (35%, $n = 6$), an AWC staff briefing (29%, $n = 5$), or by In-Processing/Orientation Brief or Other (12%, $n = 2$ each). The two who selected the "Other" category indicated that they heard about the AWC from the Army Clinic or they were at Carlisle Barracks when it first opened. One additional person selected "other program or initiative," and wrote in that he or she first heard about the AWC from the Performance Triad Pilot Program.

Table 2. PCMH Staff Awareness of the AWC

Variable	<i>n</i> (%) of PCMH staff
Aware of the AWC, <i>n</i> (% yes) ($n = 18$)	18 (100)
Aware of AWC Services, <i>n</i> (% yes) ($n = 17$)	15 (88)
Knowledge of AWC Core Programs*	
• Suicide Prevention	0 (0)
• Physical Fitness	15 (88)
• Health Assessment Review	15 (88)
• Tobacco Education	6 (35)
• General Wellness Education	17 (100)
• Drug Rehabilitation	0 (0)
• Alcohol Counseling	0 (0)
• Healthy Nutrition	16 (94)
• Stress Management	14 (82)
Ever Briefed by AWC Staff, <i>n</i> (% yes) ($n = 18$)	17 (94)
Ways Briefed by AWC Staff* ($n = 16$)	

Variable	n (%) of PCMH staff
• Newcomer's Brief	3 (19)
• Employee's In-Processing Checklist	3 (19)
• Provider Brief	6 (38)
• Staff Meetings	11 (69)
• Huddles	13 (81)
• Other	1 (6)
Satisfaction with Brief(s) (n=16)	
• Not at all Satisfied	0 (0)
• Slightly Satisfied	6 (38)
• Moderately Satisfied	8 (50)
• Very Satisfied	2 (12)
• Extremely Satisfied	0 (0)
First Heard about AWC (n = 17)	
• AWC Staff Briefing	5 (29)
• Coworker	0 (0)
• Friend	0 (0)
• Family Member	0 (0)
• Unit Commander, Leader, or Supervisor	6 (35)
• Website	0 (0)
• Advertisement, Flyer, Brochure, Poster, Bulletin	1 (6)
• In-Processing or Orientation Brief	2 (12)
• News Media/Article	0 (0)
• Fitness Center	(0)
• Other Program or Initiative	1 (6)
• Other	2 (12)
Confidence in AWC Knowledge and Skills (n = 17)	
• Not at all Confident	2 (12)
• Slightly Confident	1 (6)
• Moderately Confident	1 (6)
• Very Confident	2 (12)
• Extremely Confident	11 (65)
PCMH Staff Participation in Medical Home Huddles (n = 17)	
• Never	1 (6)
• Rarely	1 (6)
• Sometimes	6 (35)
• Often	9 (53)
• Always	0 (0)
AWC Staff Participation in Medical Home Huddles (n = 17)	
• Never	2 (12)
• Rarely	15 (88)
• Sometimes	0 (0)
• Often	0 (0)
• Always	0 (0)

Note:

* Item subtotals will not add up to 100% because participants were requested to select all that apply.

6.3.3 PCMH Staff Structured Interview Results

Error! Reference source not found. shows five overall themes related to PCMH's staff member awareness of the AWCs' services. Example quotes have been added.

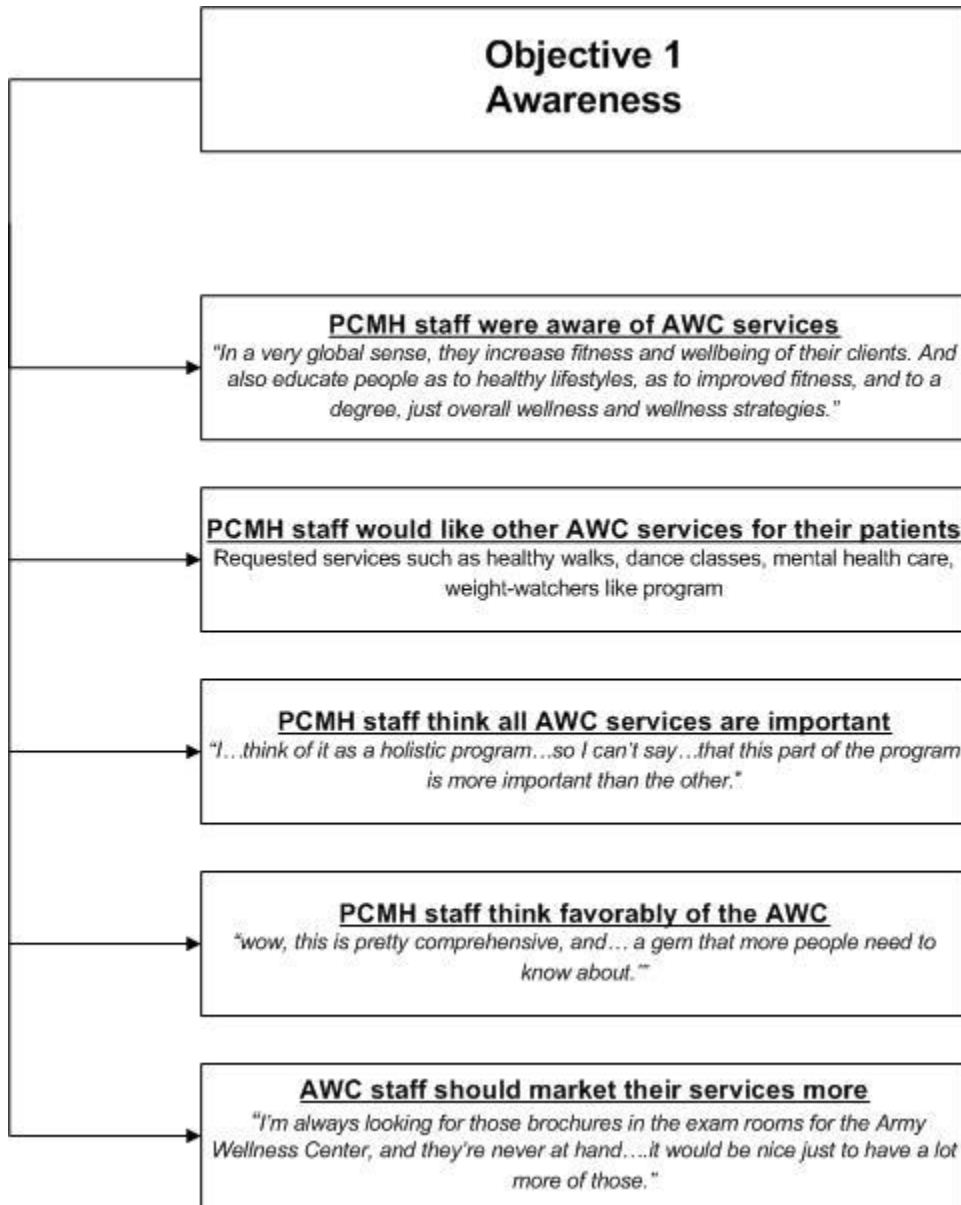


Figure 4. PCMH Staff Awareness

6.3.3.1 PCMH Staff Was Aware of AWC Services

PCMH staff members seemed expressed awareness of the services that the AWC provides, although, as discussed later, there were some misperceptions about how their services are conducted. Some PCMH Staff members were able to name specific services that AWCs conduct, such as biofeedback or body composition, and several PCMH staff members had gone through assessments at the AWC, or expressed interest in doing so in the future.

6.3.3.2 PCMH Staff Would Like Other Services for Their Patients

Although PCMH staff members were familiar with the services that the AWC provides, they expressed interest in seeing the AWC provide additional and/or different services. For instance, one PCMH Staff Member felt that community-based activities would be useful, to encourage clients to get active without needing to come in for an assessment. This Staff Member also expressed a desire for the AWC to become more engaged in mental health care. Another PCMH Staff Member also wanted other AWC services, citing nutrition counseling and a Weight-Watchers®-like program with weekly weigh-ins as examples of the type of programs she felt would most benefit her patients.

6.3.3.3 PCMH Staff Thinks All AWC Services are Important

Even though PCMH staff members interviewed expressed a desire for additional AWC services, they still felt that what AWCs do is important. As one PCMH Staff Member stated, *“Nothing is not important.”* This same Staff Member also expressed his fervent desire for more holistic care for his patients, stating, *“I would much rather treat people with a fitness prescription than any other pharmaceutical you can think of.”*

6.3.3.4 PCMH Staff Thinks Favorably of the AWC

PCMH carried an overall positive impression of the AWC. One PCMH Staff Member was particularly enthusiastic:

“So, I thought, ‘this is awesome,’ and then I thought, ‘man, this would cost me serious bank if I tried to have this same type of analysis and service in the private sector,’ and then...I thought, ‘wow, what a great opportunity for my patients to...achieve an increased level of fitness, which in turn is going to lead them to better health...This is pretty awesome to have this asset here.”

Another PCMH Staff Member also had a favorable impression of the AWC: *“They’re doing an outstanding job...Everybody enjoy[s] going there when they are able to. They should keep up the good work.”* This Staff Member also said that they had not heard any negative comments from the patients, and that *“patients here are...satisfied with the services they receive at the Wellness Center.”* Other PCMH staff was slightly less enthusiastic, but expressed that there were no major issues with their relationship with the AWC. AWC staff members were described as *“very professional”* (PCMH Staff Member), and trying to make an effort, while the facility was described as clean.

6.3.3.5 AWC Staff Should Market Their Services More

PCMH staff members desired additional marketing of AWC services from the AWC staff members, and had multiple different ideas to market AWC services, including videos, a physical presence in the lobby, posters, brochures, and business cards. Marketing seemed to be a focus because their patients were not aware of the AWC as a resource to help with their health.

To start off this conversation, a PCMH Staff Member asked, *“wouldn’t it be cool to have...a 5 minute Army Wellness Center video”* out in the waiting area on the big screen TVs, and stated that the video could include interviews with patients who had gone through the AWC, since *“a testimonial... would help increase awareness.”* This same PCMH Staff Member also expressed how helpful brochures were in both referring patients to the AWC and in marketing the AWC’s services, but expressed chagrin that there were never enough of them. If this Staff Member had more brochures, he would *“hand them out with everybody that came in...especially if...they’re a wellness visit,”* since brochures are particularly helpful to make referrals. This Staff Member said that he *“can talk about it, but unless they [the patients] have something they can hang on to and look at,”* they are unlikely to make an appointment with the AWC later on. Another PCMH Staff Member chimed in on the subject of brochures as well, stating, *“it would make the recommendation for a patient just a little bit easier”* to have pamphlets located in the exam rooms.

Discussion also came up about posters and signage. While multiple PCMH Staff Members felt that posters would be helpful, they passed on the information that exam room posters are *“a highly regulated thing,”* and endorsed waiting room posters as somewhat easier. One PCMH Staff Member also discussed the benefits of having *“somebody from the Wellness staff...actually sitting in a little table”* in the waiting room. This Staff Member felt that it served *“as a reminder to the patients that...somebody’s there...if they had a question”* or wanted to pick up a brochure.

6.3.4 AWC Staff Semi-Structured Interview Results

Figure 5 shows three overall categories in which AWC staff members were aware of their services. These categories include, AWC Staff Members were aware of the PCMH; AWC staff members marketed their services; and AWC staff members’ perceptions about the PCMH staff members and facilities.

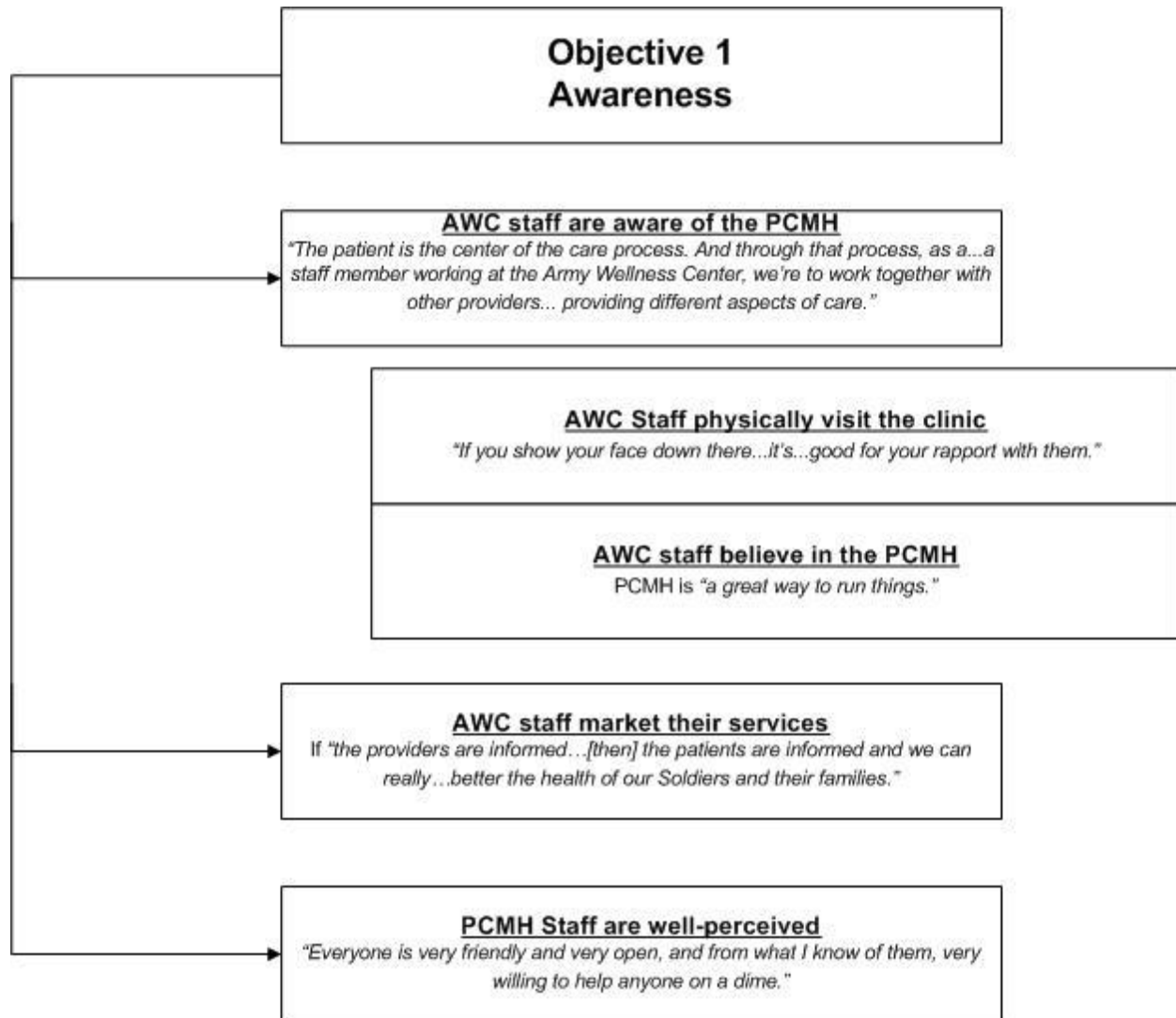


Figure 5. AWC Staff Awareness

6.3.4.1 AWC Staff was Aware of the PCMH

Overall, AWC staff members were aware of the PCMH and all staff members could clearly articulate both what the PCMH acronym stood for and the conceptual framework behind the term PCMH. It was also quite clear that AWC staff members believed in the PCMH model, and one AWC staff member indicated that they already embody the PCMH model by *"always tr[ying] to make sure that they have access and knowledge and information about all other areas or other services that are offered..., so that they have a well-rounded experience in regards to their health."*

The AWC felt there were benefits from physically visiting the clinic. The AWC staff members also visited the MTF relatively frequently, though that depended on their role at the AWC. For instance,

the AWC PL and the AWC Health Promotion Technician (HPT) were more likely to visit the clinic than the health educators, likely because they had more business that required face-to-face interaction at the clinic. For instance, the HPT *“put out new flyers”* (AWC Staff Member) marketing AWC services, and another AWC Staff Member identified that the AWC PL *“primarily attends a lot of meetings and...weekly huddles...at the clinic, where he is communicating directly with the staff there.”*

Most AWC HEs primarily visited the MTF for trainings only, despite the benefits that could be derived from visits that are more frequent. One AWC staff member reported that the only times she visited the clinic were *“for fire drills...meetings down there...or a training.”* Although one AWC staff member did report, *“[escorting] a patient there who presented with extremely high blood pressure,”* that behavior was an exception rather than the norm.

6.3.4.2 AWC Staff Marketed Their Services

AWC staff members *“like any opportunity to promote [their] services,”* and they work to market their services, both to the client and to the PCMH staff members, although one AWC staff member felt that their *“name’s out there a little bit more, especially over the last couple years.”* Some of the ways AWC services are marketed include fairs and festivals, giving information to providers, giving information to patients who may become future clients, and encouraging PCMH staff members to become clients themselves at the AWC. The benefit of encouraging those providers to become clients themselves is articulated particularly well by one AWC staff member:

“We can talk about it, but once they’ve actually done it [been through the AWC services], I think they are a little more excited and understand a little bit deeper about...what we can actually offer. Encouraging them to actually take part in the services instead of just hearing about it makes a big difference.”

Lastly, AWC staff members such as the HPT may market services just by providing excellent customer service and discussing AWC services with current MTF patients who may be potential AWC clients. For instance, one AWC staff member said:

“how we work as a team and how we work here... really affects peoples’ views of us...if someone asks me to do something..., I’m going to go out of my way for that client... [all while] explaining what we [AWC] do at the same time...and that there are assets...here if they’re interested.”

6.3.4.3 AWC Staff Perceptions About the PCMH Staff and Facilities

Nearly all of the AWC staff members had good things to say about the PCMH staff as a whole. AWC staff members felt that the PCMH staff members were friendly, supportive, and transparent. AWC staff members also felt supported by PCMH staff members. Although the perception of PCMH staff members was overwhelmingly positive, however, it was noted that *“one, maybe two individuals up at the clinic...aren’t on board,”* (AWC Staff Member) and one particular staff member was mentioned multiple times as being difficult to work with.

There is also a perception from AWC staff members that PCMH and AWC staff members are *“all on the same team.”* One AWC staff member mentioned that *“it’s a really close knit kind of family relationship; they really take us in and see us as...an integral part of the clinical services.”* Further,

the health educators perceive that PCMH is an integral way to help their patients work on barriers to their wellness goals. As one staff member stated, if *“someone is...injured, or suffering from pain...I always refer them..., especially if it is inhibiting them from reaching their goals with us...We want to...help them achieve their health and wellness goals, and I think the number one way for them to do that is to be seen.”* Despite being all on the same team, however, there is still the perception that the AWC is *“an outlying clinic, just like...the other three [clinics] are”* (AWC Staff Member). However, this is not necessarily a negative thing. As an AWC staff member stated, *“I think being in separate buildings has its benefits, but it’s challenging as well.”*

6.4 Better Understand the Barriers and Facilitators Experienced With the Referral Process

6.4.1 Results Synthesized across Data Collection Methods

The majority of PCMH staff members who took the survey indicated they had previously made referrals to the AWC. This echoed the information discussed in both sets of semi-structured interviews, since nearly all of the staff members interviewed had referred patients to the AWC, and the AWC indicated that PCMs were most likely to refer clients to them. Further, on the survey, PCMH staff members were most likely to endorse that AWC staff members were “always” responsive to their referrals. The PCMH semi-structured interviews support these data, which indicated that PCMH staff members never doubted that their patients were called by AWC staff members.

PCMH staff members were much more likely to endorse barriers to referral than facilitators. They felt their schedules and patient load made it difficult to refer patients to the AWC, which AWC staff members had no knowledge or understanding of, and expressed a desire only to refer patients when the patients were ready to make a change for themselves or were interested in the AWC’s services. However, AWC staff members focused more on marketing their center to providers, rather to clients, which illustrates a potential gap in understanding. There were other points of misunderstanding as well on the part of PCMH staff members, demonstrated in the PCMH staff member semi-structured interviews, as well as in the survey, since not all PCMH staff members could correctly identify the AWCs’ core programs.

Another interesting discrepancy between AWC staff members’ and PCMH staff members’ interviews was how they viewed the employee wellness program and having PCMH staff members participate as AWC clients themselves. While AWC staff members viewed both these things as very beneficial to increasing referrals to their facility, PCMH staff members were frustrated that they could not make the time or were not encouraged by leadership to participate in the employee wellness program. Those PCMH staff members who reported having gone through an AWC assessment viewed it more neutrally, while AWC staff members felt very positively about that experience.

Both AWC and PCMH staff members expressed, in different ways, that there was some overlap between their services. AWC staff members indicated that their clients were sometimes receiving conflicting guidance from PCMH staff members, while PCMH staff members indicated that there was some duplication of services between what PCMH provides and what the Wellness Center provides. Information from both sets of interviews also indicated that frequent staff turnover was a barrier to referrals, since neither knew or felt comfortable with new staff members, and because attitudes may change between staff members.

Lastly, AWC staff members were able to give more information about the frequency and reasons for referrals compared to PCMH staff members. This may be due to the time/patient load barriers that the PCMH staff members experienced, or because AWC staff members were more likely to be informally referring patients to the PCMH themselves, rather than relying on a third party, like a nurse or administrative assistant, to refer for them.

6.4.2 PCMH Staff Survey Results

Table 3 shows the data related to barriers and facilitators of the referral process. PCMH staff members were asked whether they knew they could refer patients to the AWC. The large majority both knew they could refer and had referred at some point (both 76%, $n = 13$ each). Of the four participants who had never referred a patient, the barriers indicated that: they ask someone else to refer their patients (50%, $n = 2$); there was no AWC in their location (50%, $n = 2$), and "Other" (50%, $n = 2$). Those who indicated "Other" wrote in that he or she worked in pediatrics, or that he or she did not provide care, so would not do a referral. A third of providers felt that AWC staff members were always responsive to their referrals, whether informal or formal (32%, $n = 7$).

Table 3. PCMH Staff Barriers and Facilitators to Referral

Variable	<i>n</i> (%) of PCMH staff
Knowledge of Referral Ability, <i>n</i> (% yes) ($n = 17$)	13 (76)
Ever Referred, <i>n</i> (% yes)	13 (76)
Reasons for Never Referring, <i>n</i> (% yes)* ($n = 4$)	
• Ask someone else to refer my patients to the AWC	2 (50)
• No AWC in their location	2 (50)
• Other	2 (50)
AWC Responsiveness to Referrals, <i>n</i> (% yes) ($n = 13$)	
• Never	1 (8)
• Rarely	1 (8)
• Sometimes	3 (23)
• Often	1 (8)
• Always	7 (32)

Note: * Item subtotals may not add up to 100% because participants were requested to select all that apply.

6.4.3 PCMH Staff Semi-Structured Interview Results

Program evaluators did not identify any facilitators for referral from the PCMH to the AWC in the five semi-structured interviews conducted with PCMH staff members, and were unable to capture much information about the frequency and reasons for referral. However, program evaluators identified a myriad of barriers to referring patients from the PCMH to the AWC. Figure 6 shows how PCMH interviews were themed for Objective 2.

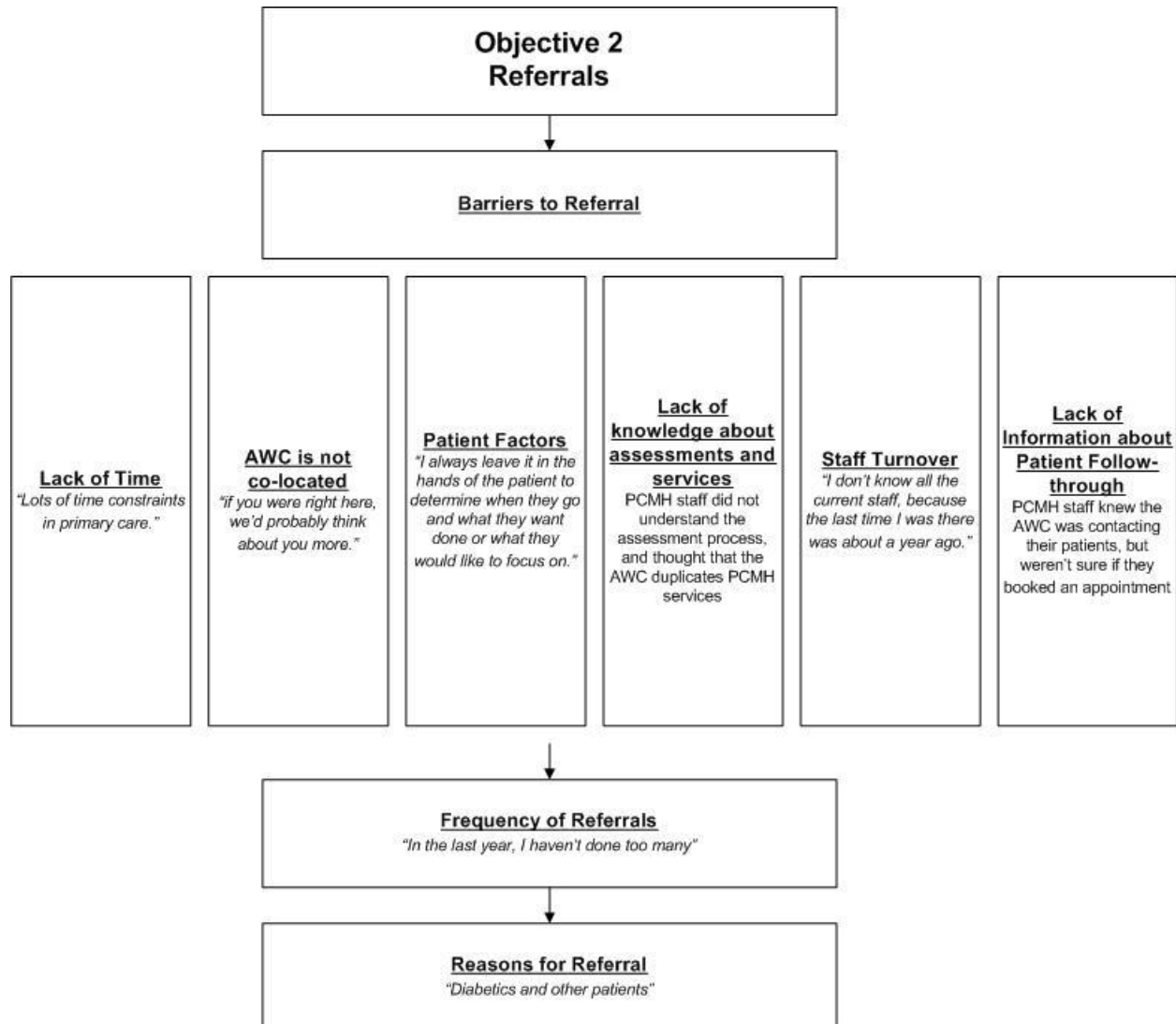


Figure 6. Referral Information from PCMH Staff Interviews

6.4.3.1 Barriers to Referral

6.4.3.1.1 Lack of Time

One barrier identified by the majority of PCMH staff members interviewed was time and patient load. PCMH providers are assigned to see a maximum of 19 patients per day and are supposed to spend an average of 20 minutes with each patient. Providers indicated that they are rushing with patients, and may not have the time to spend in the encounter discussing the Army Wellness Center. One PCMH Staff Member provided a vignette of his typical encounters: "my average patient...[has] on average 5 diagnoses, so when you're trying to manage that" it becomes difficult to

also educate patients about preventative services like the AWCs. Another PCMH Staff Member also added information related to hectic patient encounters, stating that, *“my thoughts are usually geared towards getting what I need for the patient at that time, and the Army Wellness Center doesn’t frequently come into my mind.”*

Even when the actual patient care goes smoothly, PCMH staff members must attend to a large volume of paperwork. Further, PCMH staff members’ daily schedules do not take into account urgent issues, as described by another PCMH Staff Member: *“we’re inundated with taskers throughout the day, so you’re always trying to triage and take care of the urgent ones.”* Further, this Staff Member reported being *“pulled in a lot of different directions,”* with other Command duties getting in the way of their primary job.

Unfortunately, the burden of paperwork and administrative duties is made worse by *“an inefficient health record...[that’s] not reliable”* (PCMH Staff Member). This same PCMH Staff Member illustrates the frustration with AHLTA and high patient load, suggesting:

“In the private practice world, you’re seeing sometimes even more than that [19 patients], but the big difference is, the [Electronic Medical Record] EMR that you use in the private practice world is so much faster, so much more user friendly, and doesn’t go down... AHLTA is a huge impediment to efficient patient care. But even the private practice world...even though everybody talks about PCMH and quality, the reality is that we still live in a volume world, so it’s more about getting bodies through, and...getting your coding done.”

Further, PCMH staff members indicated they do not even have time to take care of themselves. Although PCMH staff members were interested in either taking part in AWC services for the first time or continuing to take part in AWC services, they expressed frustration that they could not make time to go through the assessments for their own health. One Staff Member noted that even though Move to Health (Mth) training was completed at their clinic, which pushes holistic health and focuses on the providers’ health needs before the patients’, that it was difficult to find time to eat lunch, let alone visit the AWC. This time barrier means that PCMH staff members are not deliberately seeking out extra patient referrals from the AWC. As a PCMH Staff Member stated, she is not lacking in business and is busy enough as is, without any additional patients coming from the AWC.

6.4.3.1.2 AWC is not Co-located

PCMH staff members thought that the AWC’s lack of co-location with the MTF was a barrier to collaboration. One PCMH Staff Member stated: *“out of sight, out of mind”* and said he did not refer *“just because I haven’t thought about it.”* PCMH staff members reported they *“probably [would] not walk over”* to the AWC, even though it was admittedly only a short walk of a quarter to half a mile. Since PCMH staff members were not willing to walk over to the AWC, they mentioned lack of AWC co-location as a barrier to referrals, stating, *“outside of being able to walk them there, the best I can do is...ask them to go down there.”* The other PCMH Staff Member had additional concerns, citing that parking was difficult at the AWC and that it could be confusing to patients to have to go to a second location, especially when they are attending classes that are jointly held by the AWC and PCMH. In the absence of AWC co-location, one PCMH Staff Member suggested, *“periodic interactions with...the medical staff as a whole”* would *“serve as a reminder to us that...your services are here.”*

6.4.3.1.3 Patient Factors

Patient characteristics were another major barrier to referral. PCMH staff members report that the patient ultimately decides what treatment he or she engages in. The number one reason why PCMH staff members will refer or recommend the AWC is *“whether the patient expresses an interest or not”* (PCMH Staff Member). Another PCMH Staff Member stated, *“it just depends on if the patient is ready...are they in the contemplation, pre-contemplation [stage]?”* There are a number of barriers to patients being ready for change. One PCMH Staff Member expounded on this, stating that behavioral health issues and socioeconomic status can make it even more difficult to engage patients in holistic health and AWC visits, and that she has *“yo-yo patients”* that bounce between motivation level extremes. A PCMH Staff Member mentions other patient barriers to a holistic health approach:

“Time can be a barrier, not knowing how to increase fitness...is a barrier. I think that for some patients, because they may have a significant weight issue, they’re embarrassed to maybe go to a gym...I think some people feel that their health is...‘so far gone’ that...they feel that maybe it’s too late for them.”

In addition, another PCMH Staff Member indicated patients may feel overburdened by the number of medical/health appointments they attend, and thus adding the Wellness Center onto their plate may feel overwhelming. Patients may also have pressure and anxiety about visiting the AWC, which acts as a barrier for them. Patient diversity at Carlisle Barracks was also cited as a potential barrier, since it is difficult to treat such a wide variety of people well, including specialists, retirees, children, upper ranking military, and a geriatric population. In general, one PCMH Staff Member summed up the patient factors that go into making an AWC referral or recommendation, stating, *“AWC is great if they’re willing to change.”*

6.4.3.1.4 Lack of Knowledge About Assessments and Services

Other barriers related to PCMH staff referral to the AWC potentially stem from communication issues, since most PCMH staff members either lack some crucial knowledge about the AWC or hold misinformation about the AWC. PCMH staff members feel that the AWC may duplicate some of their services, do not know whether the patient ever followed through to visit the AWC, and do not feel as comfortable with the AWC because staff turnover prevents them from getting to know all the Staff Members there.

Some PCMH Staff members were misinformed about the AWC assessment process. For instance, although the AWC enterprise guidance typically allows clients to participate in as many or as few AWC services as they would like, one PCMH Staff Member was under the impression that all assessments, totaling approximately 2 hours of client time, is required. Similarly, another PCMH Staff Member was under the impression that all clients must undergo a body composition assessment using the Bod Pod, and that this assessment must come first before any additional services can take place, including health coaching, which again does not represent enterprise-wide AWC guidance. This PCMH Staff Member was frustrated with the Carlisle Barracks AWC because her patients reported negative experiences with the Bod Pod, and she believed this assessment was mandatory. She expressed concerns that her patients were being told they were *“morbidly obese”* but were offered no counseling, help, or other action plan to help them deal with this

“mortifying” truth. Further, this same PCMH Staff Member believed that 30 days was not enough time to affect change, and thus requiring a follow-up every 30 days was only making patients more frustrated and less likely to return to the Wellness Center.

Other instances of misinformation included a PCMH Staff Member reporting that biofeedback services took 6 weeks, when it typically is only four; requesting health coaching as a service, which is already something the AWC provides; and requesting walk-in appointments, which already take place. In general, PCMH staff members were not as well-versed in the AWCs’ six core programs as desired, and did not appear familiar with their model of standardizing services enterprise-wide. In fact, one particular PCMH Staff Member was under the impression that the AWC actually duplicates some of the services she and the dietitian offer to patients.

6.4.3.1.5 Staff Turnover

Staff turnover and difficulty keeping acquainted with everyone at the AWC was a barrier to referrals. As a PCMH Staff Member stated, *“I don’t know all the current staff, because the last time I was there was about a year ago, so I don’t know everybody.”* Another PCMH Staff Member also noted this phenomenon, and both Staff Members expressed negativity towards not knowing who is currently at the AWC.

6.4.3.1.6 Lack of Information about Patient Follow-Through

PCMH staff members would like to know whether the patients they referred or recommended to the AWC actually went and followed-through with the appointment. Multiple PCMH staff members stated that they were sure that the AWC was contacting patients, but they just were not sure if patients actually booked or went to their appointment. Although the provider can check back within AHLTA, this takes time and does not often cross their mind.

6.4.3.2 Reasons for and Frequency of PCMH Staff Referral to AWC

There was very little discussion of why PCMH staff members referred or recommended patients go to the AWC, as it was not a question on the semi-structured interview guide and did not come up naturally in conversation as it did in the AWC staff member semi-structured interviews. However, it was found that one PCMH Staff Member refers *“diabetics and other patients”* and that both formal referrals and informal recommendations take place somewhat rarely, though PCMH staff members were more likely to recommend patients visit the AWC than to actually refer them. A Staff Member stated that he referred *“one a month for the last number of months.”* Another PCMH Staff Member stated that she just does referrals *“sometimes”* and a third Staff Member thought that she sent maybe 2–3 patients per week to the AWC. There was one PCMH Staff Member, however, who referred more frequently, stating *“it’s not a daily event... but a few times a week, it’ll come up,”* and when asked how many clients per month he referred or recommended, replied, *“probably ten.”*

Receipt of patients from the AWC was also quite rare, with one PCMH Staff Member reporting approximately 1 percent of patients making an appointment with her as a direct result of AWC intervention (by calling or a *“heads up”*). The other PCMH staff members reported never having received patients from the AWC, although they did occasionally receive a med-clearance form for their patients to participate in the fitness test. However, it appeared that PCMH staff members did not desire for the AWC to provide them with patients, either, citing an already-full patient schedule.

6.4.4 AWC Staff Semi-Structured Interview Results

The AWC staff members' semi-structured interviews were very informative in identifying facilitators and barriers to the referral process. Further, additional information about the referral process was offered, including the reasons for referral, frequency of referral, and to whom the referrals were being made. Figure 7 presents an overall view of the interview theming.

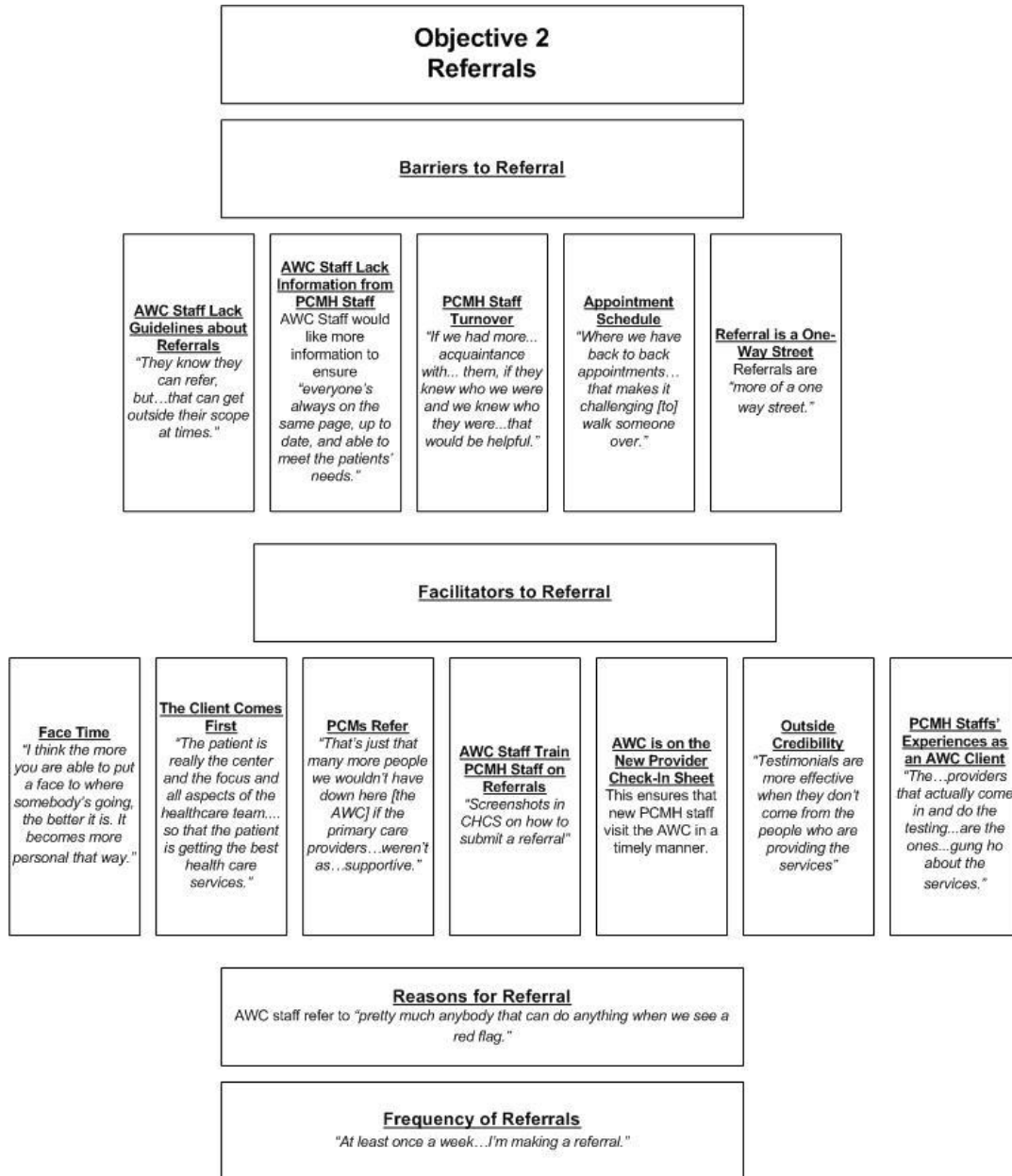


Figure 7. Referral Information from AWC Staff Interviews

6.4.4.1 Barriers to Referral

6.4.4.1.1 AWC Staff Lack Guidelines about Referrals

Many barriers to referral between PCMH and AWC staff members exist. AWC Staff members feel they need additional guidelines or information on a wide variety of topics. AWC staff members would like guidance about when they should be referring a client to the PCMH. Although referrals to PCMH components such as physical therapy (PT) and behavioral health are being pushed on a strategic level, all of the AWC Staff members felt that they needed additional guidelines in order to do so appropriately, and expressed concerns that referrals to those providers would be out of their scope. For instance, specific to PT referrals, one AWC Staff Member discussed her ignorance about PT referrals, although she was eager to learn: *"We've never been told who we would refer to physical therapy. As far as I know, that's mostly the doctor's job...I know we'd all be happy to learn... if that was something we should be doing."* She further compared PT with other situations in which she might informally refer back to the PCMH, stating that, *"with the blood pressure and the nutrition aspect, those are both in our guidelines...[but] for...physical therapy, there is no protocol or guideline."* Other staff members also expressed their discomfort at referring to PT directly without going through the PCM first. One stated that she *"would feel more comfortable referring them to the doctor first, just because...it would be a little outside my practice."* Another stated that: *"even if someone is injured...it's a little out of our scope for me to try and send them straight to physical therapy, when I don't have an idea of what it is....that's why I still refer to their physician."*

This discomfort was also expressed regarding behavioral health services. One staff member stated, *"we've gotten a couple people in here that we felt like was a little out of our scope and could benefit from counseling services"* but stated that there was no protocol for when/how to refer back to behavioral health. Another AWC Staff Member specifically requested *"a little more clarity on...certain things that we should be...referring people for."*

Another area that the AWC staff members wanted additional guidelines on was what information to relay back to PCMH staff members after seeing a client that was referred to their AWC. An AWC staff member indicated that *"when they're [patients] referred here, we don't have any protocol for what we do or who we contact once that patient's seen"* and another staff member requested information on *"how to communicate with them [PCMH Staff] on...the clients that we see."* She also noted that she *"doesn't often relay knowledge back"* to PCMH. In order to solve this problem, one AWC staff member suggested that perhaps sending an encrypted email would be an easy way to increase information flow related to clients that were referred to the AWC by PCMH staff members.

AWC staff members also requested more information regarding why a patient is being referred to their Wellness Center. A staff member noted that they *"get...a short...two sentence blurb...so sometimes it's not really clear what their thought process is behind sending a client over...It would definitely help...to have background in where they're coming from...versus going in cold."* This same staff member also stated that she wanted to know from the referring provider in the PCMH *"how best to care for the client."*

6.4.4.1.2 AWC Staff Lack Info about PCMH Staff

It is important to keep communication flowing and up to date between the AWC and PCMH staff members because there is a risk that each party could provide conflicting information. As one AWC

staff member stated, *“if we refer someone to the physician or the dietitian, it would be nice to see what the dietitian is giving for guidance, because we could be giving completely different things.”* Conflicting information may result in a negative experience for the client, and can make them feel *“frustrated and discouraged, [especially when] they’re trying to make changes [and] they’re often already frustrated and discouraged.”*

6.4.4.1.3 PCMH Staff Turnover

PCMH Staff turnover was a barrier to referrals. Staff changed *“year to year”* and AWC Staff Members expressed wanting to get to know PCMH Staff members better to combat this.

6.4.4.1.4 Appointment Schedule

AWC Staff members reported that referrals are *“more of a one way street,”* since they are mostly receiving, not making referrals. Even though leadership is pushing for both the AWC staff members and PCMH staff members to be able to refer, it is currently difficult to do so, and the desire for referrals to take place from both AWC and PCMH staff members is incongruent with current permissions. Even when AWC staff members refer, multiple AWC Staff Members mentioned that the PCMH Staff members do not necessarily check or respond to formal referrals made in CHCS. This is problematic, since use of the referral system is intended to make the referral process easier and less time-intensive.

6.4.4.2 Facilitators to Referral

6.4.4.2.1 Face Time

AWC staff members’ *“face time”* with PCMH staff members is beneficial. Face time may help ensure informal referrals, often-called warm hand offs, which are deemed *“more effective”* than other means of referral, such as putting a hard referral into CHCS.

6.4.4.2.2 The Client Comes First

The attitude that the client comes first is a facilitator for referrals from PCMH to the AWC, since both parties are trying to get their client the best care possible. As an AWC staff member stated, *“the doctors, the nurses, dieticians, the Wellness Centers - are all working together and really speaking with one another so that the...patients’ needs are really being met.”* This desire to *“ensure the patient/client gets the best care that they...need, whether it be preventive or medicinal”* (AWC Staff Member) means that providers are probably more willing to work together and make referrals to the Army Wellness Center.

6.4.4.2.3 PCMs Refer

AWC Staff members reported that PCMs were most likely to refer patients to the AWC. Similarly, AWC Staff members were most likely to refer back to the PCMs as well. AWC Staff members noted that *“if...their provider is not at this clinic... I usually [recommend]...whatever physician is open.”* However, AWC staff members also refer to the dietitian on occasion, but have not referred to PT.

6.4.4.1.4 AWC Staff Train PCMH Staff on Referrals

When provider briefs take place, AWC staff members provide information on how to refer patients to the AWC, which ensures that they have the capability to make formal referrals if desired.

6.4.4.1.3 AWC is on the New Provider Check-in Sheet

Similarly, AWCs have ensured that they are on the new provider check-in sheet, which is a document outlining the steps that all providers new to the MTF must follow. One of these processes for new providers is to visit the AWC. Being on the new provider check-in sheet is the fifth facilitator to referrals, because it helps ensure that new providers are aware of AWC services and are familiar with the location. This check-in sheet also means that new PCMH Staff members are informed in a timely manner, without having to wait for the twice-yearly provider briefings done by AWC staff members. When PCMH Staff members arrive for their check-in visit, AWC staff members typically provide “a quick tour” (AWC Staff Member) information on services, and how to refer patients. Taking advantage of this window of opportunity is crucial, because “typically the first...couple weeks a provider is on schedule, they have a lot of downtime because they don’t have access to anything yet” and AWC staff members may be able to educate new providers about the AWC before PCMH Staff members experience time barriers.

6.4.4.1.6 Outside Credibility

Many of the PCMH Staff members (estimated by an AWC Staff Member as “at least 10-15”) have had positive effects on the marketing and credibility of the program:

“one of the best ways [to encourage PCMH staff to refer] was...just having... clinic staff go through our services, because...once they’ve actually done it... they’re a little more excited and understand a little bit deeper about...what we actually can offer...Encouraging them to actually take part in the services instead of just hearing about it makes a big difference.”

Further, the MTF sponsors the Employee Wellness Program, which provides MTF staff members with incentives for healthy behavior. The AWC is “included in that wellness program, so in order to participate they actually have to have [an] initial and a follow-up [visit]” (AWC Staff Member). Lastly, having other people or outside organizations endorse the AWC, either as a whole or individually, is a facilitator to referral. An AWC staff member stated that information about the AWC is “sometimes easier coming from an outside source.” One of those outside organizations was the Move to Health (Mth) implementation team from the System for Health (SfH) directorate at OTSG. The Mth training was mentioned by multiple staff members as being beneficial for educating PCMH staff members and increasing referrals to the AWC. As one AWC Staff Member stated, “Move to Health...[brought] the Wellness Center more in[to] the eyes of the PCMH staff, and...getting to meet...through that...was definitely helpful.”

Leadership can be another source of outside AWC endorsement. One AWC Staff Member was very sensitive to this reality, stating that:

“Just like some bad news spreads, good news can spread that way, too. And it gets people excited and it gets them in the door. So...having key players...that are outside your organization...onboard with what you do, the better off you are...because people

always assume you are biased....Having the key players...onboard [means]...the staff follows. Attitude reflects leadership, and so the more leadership players you can get on board the better."

This same staff member was also helpful in identifying ways to engage leadership. She reported that the AWC staff members *"speak their [leadership's] language"* and has strategic discussions, with data such as statistics and testimonials to back up their position. Leadership scrutinizes the overall behavior of the AWC Staff members, and presenting themselves in an appropriate and positive manner can be effective for getting leadership endorsement as well. This AWC Staff Member believes that *"leadership sees things...that the health educators do that are out of their way for clients. And they [leadership] recognizes that. Working well as a team... and providing effective services...never hurts with leadership."*

6.4.4.3 Reasons for Referral

There are many reasons why AWC Staff members may refer a client to the PCMH. Typically, AWC staff members refer for red flags, which can include high blood pressure, slow resting metabolic rate, thyroid problems, high cholesterol, symptoms of potential heart disease such as dizziness, fainting, or ankle edema, diabetes indicators, autoimmune disorders, injuries or pain, and mental health. One Staff Member captured the majority of these referral reasons in her statement:

"Someone having extremely high blood pressure is the primary thing, and then...if they identify any thyroid issues or cholesterol, something where they should be getting regular checkups, I'll make sure that they're getting back to their doctor. Or if they tell me that they have dizziness or falling or some other symptoms that they haven't gotten checked out yet, I'll say, 'hey, make a trip up to the doctor to get that checked out.'"

AWC staff members referred to PCMH when a problem came up that was out of their scope of work. For instance, an AWC Staff Member was able to offer some specific guidance about when they refer to the dietitian at the PCMH. She stated:

"Typically, when it comes to the registered dietitian... if someone just has a weight loss goal, we let them know...that there is a dietitian on staff. [But] if someone has a diabetic/pre-diabetic [condition] and they are seeking more specific dietary needs regarding their disease, then I will refer... to the registered dietitian."

The other information that came up when discussing the reasons for referral were the primary reasons patients were getting referred from PCMH to the AWC. AWC Staff members indicated that they received referrals for *"chronic illness, like obesity, or...onset hypertension, and...instead of giving them meds...they will refer them down to the Wellness Center."*

6.4.4.4 Frequency of Referrals

Generally, informal referrals from AWC staff members to the PCMH happen frequently. The frequency of urgent cases, in which the client needed to see someone in PCMH right away because of high-risk symptoms, happens *"maybe a couple times a year"* but that *"it goes in cycles....because we have War College students... In the fall when they get here, we'll see more cases where they're stressed out, having a lot of symptoms."* (AWC staff member) Although

informal referrals in the form of recommending clients to see their primary care doctor happens frequently, only in extreme circumstances and AWC staff member will walk a client over to the MTF.

Formal referrals in CHCS are infrequent, quantified the number of formal referrals as just “a *handful*.” The expert on hard referrals seems to be the HPT, with another member of the staff confessing that he has not “*actually even had to enter a hard referral in CHCS.*” Staff members were quick to note; however, that “*they book a lot of people that are referred to us*” (AWC Staff Member), implying that PCMH staff members refer clients to the AWC often.

6.5 Differentiate between Formal (Documented) Versus Informal (Undocumented) Patient Referrals

6.5.1 Results Synthesized Across Data Collection Methods

PCMH staff members were more likely to use an informal method of referral, as noted in both their survey responses and in the semi-structured interviews, although the criteria they used to refer formally or informally were relatively similar. From the information provided in the PCMH interviews, the most common reason that formal referrals do not take place is because the patient is not ready. The AWCs’ unofficial tracking of informal referrals indicates a 90 percent success rate in booking informal referrals, which is quite high. AWC staff members, particularly the HPT, were able to give enough detailed information about the process in CHCS/AHLTA that formal referrals were easily differentiated from a technology aspect. Like the PCMH staff members, however, AWC staff members often let clients book their own appointments, and cited the client’s stage of change and time barriers as the reason for informal referral usage.

6.5.2 PCMH Staff Survey Results

Table 4 shows information related to formal and informal referrals. While this survey indicates 85 percent of providers referred informally ($n=11$), only 69 percent indicated they formally referred ($n=9$). The percentage of providers referring one or more patients in the last 30 days was much higher informally than formally: As 72 percent ($n=8$) of providers were informally referring and 22 percent ($n=2$) of providers were formally referring, with both referring only one patient. However, the criteria used for both informal and formal referrals followed similar patterns. The most common criteria were weight-related conditions and willingness to make a lifestyle change (82%, $n=9$ each for informal, 78%, $n=7$ each for formal). Providers were next likely to informally refer for interest in AWC services or BMI (64%, $n=7$ each), while they were next likely to refer formally for poor dietary habits, low levels of physical activity, or BMI (56%, $n=5$ each). PCMH Staff members referred only when a patient met all three criteria (BMI greater than or equal to 30, interest in AWC services, and willingness to make a lifestyle change). When these referral criteria were combined to mimic the conditions necessary for a referral in the *AWC Annex*, it was found that 45 percent ($n=5$) of providers followed guidelines for informal referrals, while 33 percent ($n=3$) followed guidelines for formal referrals. When providers were asked to think about all referrals they had made, they reported as being most likely to refer by either using AHLTA/CHCS or informing patients about the AWC (31%, $n=4$ each). The one person who endorsed “Other” reported he or she worked in pediatrics. Pediatric staff members do not typically refer to the AWC because the AWC only takes clients who are 18 years of age or older, unless they have been referred and cleared by a provider.

Table 4. PCMH Staff Perception of Formal and Informal Referrals

Variable	n (%) of PCMH staff
Informal Referral, n (% yes) (n = 13)	11 (85)
Informal Referral Type, n (%)*(n = 11)	
• Informed patients about the AWC	11 (100)
• Suggested the patient make an appointment with the AWC	10 (91)
• Gave patients a pamphlet on the AWC	6 (55)
• Called the AWC to schedule an appointment for patients	1 (9)
• Walked patients over to the AWC	0 (0)
• Wrote patients a note on a prescription pad	0 (0)
Informal Referrals in the last 30 days, n (%)(n = 11)	
• 0	2 (18)
• 1	5 (45)
• 2-3	0 (0)
• 4-5	0 (0)
• 6-7	1 (9)
• 8 or more	2 (18)
Informal Referral Criteria, n (%)*(n = 11)	
• BMI greater than or equal to 30	7 (64)
• Poor dietary habits	6 (55)
• Low level of physical activity	6 (55)
• Uses tobacco	0 (0)
• Stressed	2 (18)
• Problems sleeping	2 (18)
• Interested in AWC services	7 (64)
• Weight-related condition	9 (82)
• Willing/ready to make lifestyle change	9 (82)
• Other	0 (0)
Guidelines Utilized for Informal Referral, n (% yes)** (n = 11)	5 (45)
Formal Referral, n (% yes) (n = 13)	9 (69)
Formal Referrals in the last 30 days, n (%)(n = 9)	
• Zero	7 (78)
• One	2 (22)
Formal Referral Criteria, n (%)*(n = 9)	
• BMI greater than or equal to 30	5 (56)
• Poor dietary habits	5 (56)
• Low level of physical activity	5 (56)
• Uses tobacco	0 (0)
• Stressed	3 (33)
• Problems sleeping	1 (11)
• Interested in AWC services	3 (33)
• Weight-related condition	7 (78)
• Willing/ready to make lifestyle change	7 (78)
• Other	0 (0)
Guidelines Utilized for Formal Referral, n (% yes)** (n = 9)	3 (33)
Referral Mechanism most commonly used, n (%) (n = 13)	
• Referral system in AHLTA/CHCS	4 (31)
• Informed patients about the AWC	4 (31)

Variable	n (%) of PCMH staff
• Suggested the patient make an appointment with the AWC	3 (23)
• Gave patients a pamphlet on the AWC	1 (8)
• Called the AWC to schedule an appointment for patients	0 (0)
• Walked patients over to the AWC	0 (0)
• Wrote patients a note on a prescription pad	0 (0)
• Other	1 (8)

Notes:

* Item subtotals may not add up to 100 percent because participants were requested to select all that apply.

**This variable was created by marking “yes” if the provider checked off that he or she would refer with at least the following three criteria together: BMI greater than or equal to 30; Interested in AWC services; Willing/ready to make lifestyle change.

6.5.3 PCMH Staff Semi-Structured Interview Results

Figure 8 presents a summary of the themed interview results.

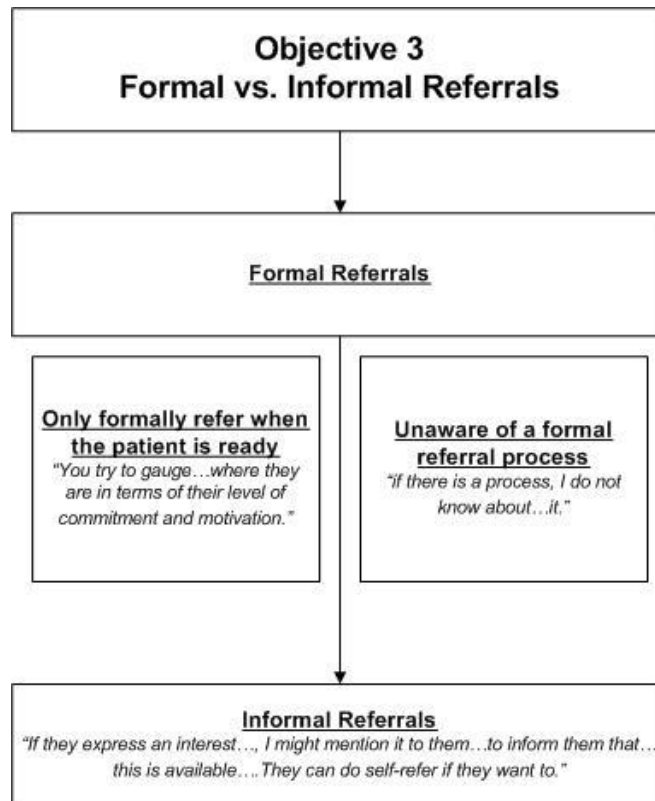


Figure 8. PCMH Staff Differentiation between Formal and Informal Referrals

PCMH staff members reported making referrals to the AWC both formally (documented through CHCS/AHLTA) and informally, in several different ways, although one PCMH Staff Member was not aware of a formal system through which to send or receive AWC staff members' patient referrals. All of the other providers were aware of the formal referral process, but typically only used it when the patient had a lot of buy-in and was ready to make a lifestyle change. One PCMH Staff Member courteously stated this:

"For me, it's the buy in. If they're...doing the tap dance, I [say] 'listen, I understand you're not ready to commit now, but here's some information....' It's how the patient reacts...to your suggestion. If somebody says..., 'I've heard about them and I've wanted to do the assessment,' I say, 'roger that!' and I'll type something in."...

Another PCMH Staff Member was also adamant that she only puts a hard referral in if the patient wants her to. Otherwise, the patient receives the call from the AWC staff member and just disregards it. One PCMH Staff Member deals with this motivation issue by using an informal referral by means of AWC handouts to act as initiating their interest in bettering their health, stating, *"Those promo items...can be a catalyst, or at least a visual cue, for them to think about the Army Wellness Center."* Other Staff members also mentioned passing out AWC trifold brochures, and endorsed using informal recommendations to the AWC.

6.5.4 AWC Staff Semi-Structured Interview Results

The semi-structured interviews with AWC staff members helped elucidate the difference between formal (documented) and informal (undocumented) referrals. Figure 9 shows a summary of the themed results.

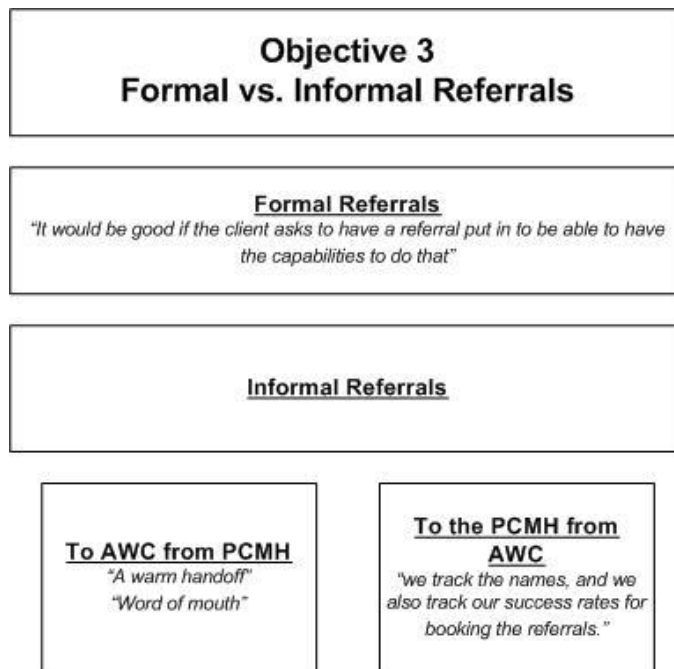


Figure 9. AWC Staff Differentiation between Formal and Informal Referrals

6.5.4.1 Formal Referrals

AWC staff members have limited capability to place formal referrals to PCMH providers in CHCS, and there is some confusion among the staff members about formal referrals. One AWC staff member referred to this as *“the hard referral, or whatever you would call it.”* As previously stated, the HPT appears to be the expert on the formal referral process, with multiple other staff members received help from the HPT, stating: *“I struggle with CHCS, just because I don’t use it on a daily basis.”* The dietician is the only provider that AWC staff members can formally refer. Typically, AWCs do not use CHCS to make referrals, but the MTF granted the Wellness Center special access to refer to the dietician in particular. However, the only thing that is required for them to gain the ability to refer to other providers is a particular code. An AWC Staff Member explained the CHCS referral process well in her interview: *“I don’t know the codes for physical therapy, but if... somebody would teach me...I could do it.”* The AWC staff members lack the formal referral capability to the majority of PCMH staff members, but they indicated that it would be desirable to expand their formal referral abilities. An AWC staff member mentioned that the formal referral process is *“something we want to...strengthen.”*

6.5.4.2 Informal Referrals from the AWC to the PCMH

The inability of AWC staff members to make formal referrals to the majority of PCMH staff members means that informal referral mechanisms, referred to as *“a warm handoff”* (AWC Staff Member) or *“word of mouth”* (AWC Staff Member), are preferred. These mechanisms include recommending a client see their doctor, calling for the client to make an appointment at the clinic, or walking the client over to the clinic in an emergency. An AWC Staff Member stated that their informal referrals are *“often times...just giving...information, because [the client] want to...take responsibility”* and in fact, AWC Staff members push their clients to be independent and *“encourage them to make the phone call themselves.”* There are also many reasons why a client may want to call their provider on their own rather than have an AWC Staff Member do it for them. For instance:

“they have to check their own schedule or they’re... not quite [ready].... You talk about stages of change, maybe they’re just contemplative about whether or not to see a nutritionist [be]cause they might have specific needs. And even though you know that it would benefit them, they still want to take it home and give it some thought” (AWC Staff Member).

However, in an emergency situation, an AWC Staff Member *“if the patient has extremely high blood pressure, I’ll actually make a phone call over to the clinic and try to get them seen immediately”* and that AWC Staff Member has also *“a couple times...escorted a patient there [the MTF] who presented with extremely high blood pressure.”*

6.5.4.3 Informal Referrals from the PCMH to the AWC

AWC staff members provided very little information about how PCMH staff members are informally referring patients to them. However, they *“track our referrals and attempt to contact them three times before they are removed off the referral list...Right now...90 percent of the individuals that are referred... here are booked.”*

6.6 Better Understand Barriers and Facilitators to Use of Secure Messaging Between PCMH and AWC Staff

6.6.1 Results Synthesized across Data Collection Methods

All three methods of data collection converged because the AMSMS was rarely used. In the PCMH staff member interviews, it became clear that providers did not recognize the term secure messaging, and instead knew it by “Relay Health”; this term was also used in one of the write in comments about AMSMS barriers. Similarly, the interviews concluded that providers do not use AMSMS, but their nurses utilize it to communicate with patients, not other providers. This information was found in the barrier comments on the survey as well, with one PCMH staff member indicating that they tried to use AMSMS to proactively make referrals, but the patients seemed disinterested. Without the enlightening information from the PCMH Staff members’ interviews about how AMSMS is used, that previous comment would have made little sense. AWC staff members knew even less about the system than PCMH staff members did.

6.6.2 PCMH Staff Survey Results

As shown in Table 5, it was reported that PCMH or AWC staff members did not use AMSMS very frequently. The majority of providers reported never using AMSMS (71%, $n = 12$) and perceived that the majority of AWC staff members never used AMSMS (76%, $n = 13$). In addition, 88 percent of PCMH staff members reported communicating about 0 percent of their patients referred to the AWC using AMSMS. When queried about the barriers to AMSMS use, the majority reported “Other” (41%, $n = 7$). These responses included preferring to talk in person or on the phone; never trying to use AMSMS to make referrals; entering proactive referrals, but the patients seem disinterested; being unaware that AWC is in Relay Health; and not sending patients to the AWC. An additional 24 percent ($n = 4$) of providers did not have an AMSMS account, and 18 percent ($n = 3$) had an account but did not know how to use it.

Table 5. Barriers and Facilitators to AMSMS use

Variable	<i>n</i> (%) of PCMH staff
Frequency of AWC Staff AMSMS Use, <i>n</i> (%) ($n = 17$)	
• Never	12 (71)
• Rarely	3 (18)
• Sometimes	0 (0)
• Often	2 (12)
• Always	0 (0)
Frequency of PCMH Staff AMSMS Use, <i>n</i> (%) ($n = 17$)	
• Never	13 (76)
• Rarely	2 (12)
• Sometimes	2 (12)
• Often	0 (0)
• Always	0 (0)
Percentage of Patients Communicated about with AMSMS, <i>n</i> (%) ($n = 17$)	
• 0%	15 (88)
• 10%	1 (6)

Variable	n (%) of PCMH staff
• 20%	0 (0)
• 30%	0 (0)
• 40%	0 (0)
• 50%	1 (6)
• 60-100%	0 (0)
Barriers to AMSMS use, n (%) (n = 17)	
• Don't have an SMS account	4 (24)
• Don't know how to use SMS	3 (18)
• Using SMS takes up too much time	1 (6)
• SMS is inconvenient	1 (6)
• Don't see when SMS messages arrive	0 (0)
• Rarely check SMS account	1 (6)
• Don't know how to access SMS account	2 (12)
• SMS is unnecessary	1 (6)
• SMS is difficult to use	1 (6)
• Unable to reach others via SMS	0 (0)
• Experienced no barriers	2 (12)
• Other	7 (41)

6.6.3 PCMH Staff Semi-Structured Interview Results

Although there were no questions in the semi-structured interview guide regarding the AMSMS, it did naturally come up in one of the interviews with PCMH Staff members. They indicated that they never used secure messaging, but that their nurses do, even though the account belongs to the providers. A PCMH Staff Member discussed this process: *“those messages are sent to us, but our nurses take care of it.”* The reason for this disuse is because secure messaging is used only for communicating with their patients at their facility, and in fact, two PCMH Staff Members were unaware that it could be used to communicate with providers as well. One PCMH Staff Member stated that secure messaging was *“primarily a patient to primary care information flow,”* with a second PCMH Staff Member chiming in, stating, *“to my knowledge, that’s all we use it for. I’ve heard you can use it...[for communication with providers] but if I need to talk to somebody else, I’ll just go talk to them.”* The first Staff Member concurred with this statement, adding, *“our facility’s small enough...[I could] just shoot an email.”* Since these PCMH Staff members’ understanding of AMSMS meant that it was only used with patients, they indicated that the number one barrier to using it was *“no time!”* (both PCMH Staff members in unison). The term “secure messaging” was not immediately identifiable to these PCMH staff members, and they recognized it under the term “Relay Health.”

6.6.4 AWC Staff Semi-Structured Interview Results

Although no specific questions were asked about the AMSMS to AWC staff members within their semi-structured interview, questions about communication revealed the subject of AMSMS. The consensus is AWC staff members do not really use SMS, and did not know any specific details related to it. One experienced AWC staff member stated that, *“I know that there was...a communication system, I just don’t know who’s using it and how often and things like that.”*

6.7 Communication between the AWC and PCMH staff

Although not listed as an objective for this project, many of the semi-structured interview questions covered aspects of communication between AWC and PCMH staff members, and after creating the codebook for these semi-structured interviews, it was deemed necessary to create an additional theme of communication. Therefore, the communication theme results from both the AWC and PCMH semi-structured interviews.

6.7.1 Results Synthesized Across Data Collection Methods

All three data collection methods seemed to show that communication did not frequently take place between AWC and PCMH Staff members. However, when communication did occur, it was most likely in-person during huddles, staff meetings, or provider briefs. This trend was demonstrated both on the survey and in the semi-structured interviews. Interestingly, although the most common way that PCMH staff survey respondents were briefed by AWC staff members was during a huddle, they indicated that AWC staff members rarely participated in the huddle. This information was contradictory to what both the PCMH and AWC Staff members stated in their interview, as both parties indicated that the AWC PL was at the huddle meeting frequently.

Although communication was infrequent, both AWC and PCMH staff members felt that this was not necessarily a problem. However, data from the third objective regarding barriers to referral shows that some misinformation about the AWC exists—a situation that neither party realized. The referral barrier of time also influenced communication; perhaps, as AWC Staff members indicated that their provider briefs were continually pushed back. Another discrepancy existed in communication reports between PCMH and AWC staff members. AWC Staff members reported that the HPT emailed providers to communicate about referred clients. The majority of PCMH Staff members did not recognize the effort since a few PCMH Staff members interviewed had requested additional information about patients seen at the AWC (such as, whether they made an appointment or who saw the client).

6.7.2 PCMH Semi-Structured Interview Results

The PCMH semi-structured interview specifically asked six questions about communication that were meant to determine how AWC and PCMH staff members communicated with one another, how frequently AWC and PCMH staff members communicated with one another, and what could improve communication between AWC and PCMH. Figure 10 shows a summary of results.

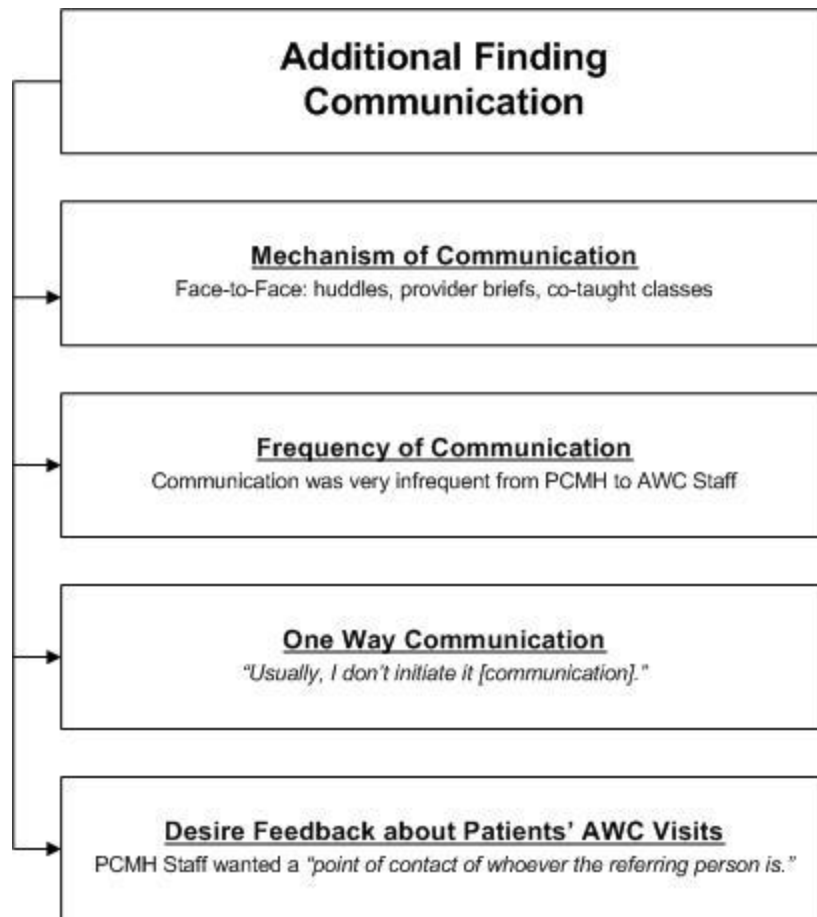


Figure 10. PCMH Communication with AWC Staff

The main message received in querying PCMH staff members about communication was that communication was one-way: AWC staff members contacted PCMH staff members, but PCMH staff members typically did not contact AWC staff members. PCMH staff members reported never emailing or calling AWC staff members, but they did mention face-to-face conversation when participating in staff huddles, provider briefs, or when teaching classes together. However, even those activities were rare, with provider briefs happening yearly, huddles happening weekly (although not all providers attend the huddles regularly), and classes co-taught on occasion only.

PCMH staff members, however, did not view this lack of communication negatively; it was deemed unnecessary to communicate with AWC staff members as long as everything was "*status quo*" (PCMH Staff Member). As one PCMH Staff Member stated, he was open to more communication, but would not seek it out: "*I guess if they think that they need more provider input....I wouldn't be adverse to that.*" Only one PCMH Staff Member requested communication, reporting that she would like to know about the client's visit at the AWC from an AWC Staff Member.

6.7.3 AWC Semi-Structured Interview Results

The AWC semi-structured interview guide asked the same questions about communication as did the PCMH guide. Figure 11 summarizes themed results.

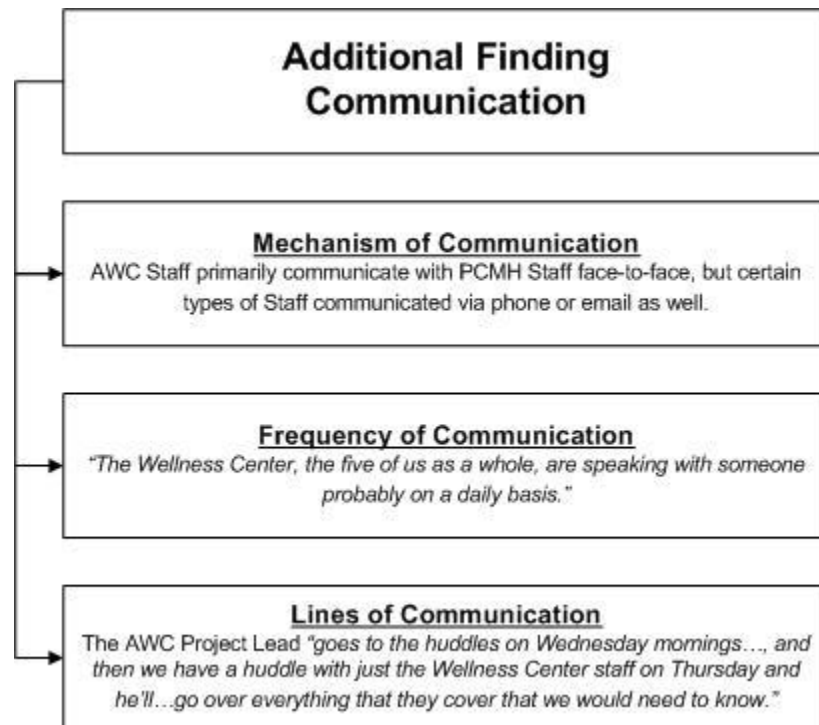


Figure 11. AWC Communication with PCMH Staff

AWC staff members communicated through three mechanisms with members of the PCMH: through email, telephone, and face-to-face communication. However, many different types of professional and social communication were identified as face-to-face communication including provider briefs, medical home huddles, social communication, and additional other professional communication. Face-to-face communication was the most frequently used method of communication between AWC and PCMH staff members.

Provider briefs, started by a prior AWC PL, are one way for AWC staff members to disseminate information about their services to the PCMH staff members. Three provider briefs are presented each year: one for each PCMH team, and a makeup. However, it was difficult for AWC Staff members to schedule these provider briefs, since there are often scheduling conflicts. In addition to the provider briefs, the AWC PL also communicated with providers weekly at the medical home huddle meetings, and the HPT previously participated in the huddles as well. Communication flowed from the PL to the rest of the AWC staff members.

Health educators did not have a great deal of face-to-face communication with PCMH staff members. One AWC staff member mentioned that she sees *"them sometimes at...orientations or*

trainings...but otherwise, not too much contact." This staff member did not feel that the lack of in-person communication was a detriment, however, and stated, *"just having the ability to...meet with them in person for a situation is fine."* Another staff member mentioned that she saw providers in passing, if they were *"stopping in."*

Both the HPT and PL often communicate on a professional level with PCMH staff members. An AWC staff member stated that *"it's a lot of coordination and planning, so...things can be settled by email or the phone, but just being down there...[is helpful]."* He also mentioned that he was routinely visiting and communicating at the clinic. An AWC Staff Member quantified the PLs in-person communication time with the PCMH staff members as *"down at the clinic at least 3-4 days per week."* A different AWC Staff Member mentioned that when she is at the clinic to put up flyers and often interacts with the PCMH staff members, and she will get *"questions on the fly,"* with providers asking about appropriate courses of action for patients they just saw. This same Staff Member mentioned that her polo shirt often raised questions about the Wellness Center as well. Social communication with the PCMH takes place as well, though somewhat infrequently. As one AWC Staff Member stated, *"I see them sometimes at different events, like holiday parties, or orientations, or trainings...but otherwise, not too much contact."*

The health educators did not often use email to communicate with PCMH staff members about their clients, despite feeling that *"the easiest way would be emailing...whenever we have seen someone."* There were concerns from AWC Staff members that emailing would not be enough of a warm hand off, and that encrypting the email was an additional hassle. However, other Staff member was under the impression that the health educators *"shoot over emails...whenever we see a referral client"* (AWC Staff Member). In contrast to the health educators, the HPT and PL often used email to communicate with PCMH staff members, to give *"somebody a heads up"* or to be informed by PCMH staff members that referred clients *"made it over"* or even for *"coordination and planning."* An AWC staff member expressed his experience with email as being *"ongoing all day"* and mentioned that he emailed back and forth with the PCMH staff members *"almost hourly."*

Telephone was not widely endorsed for communication by AWC staff members. Although health educators may use the telephone to schedule appointments for their clients on occasion, there was often no actual communication with a PCMH provider. However, one AWC staff member did note, *"you can better describe a situation to them over the phone. Maybe it's more of a warm hand off....way than just shooting them an email."*

6.8 Suggestions to Help Improve the Connection between PCMH and AWC

Using an open-ended response format, program evaluators asked PCMH staff members for their suggestions on how the collaboration between PCMH and AWC could be improved. Only five PCMH staff members chose to respond, and the majority of these comments were related to increased communication. Respondents indicated that it would be helpful to *"have AWC staff come to the clinic and present to the nurses more often, like every 3 months,"* that they *"recommend providers receive training on referral criteria and methods,"* and that they should *"continue to have meetings between the providers and the staff of AWC."* One PCMH Staff Member indicated only a question mark, and the last PCMH Staff Member stated that:

"The Army Wellness Center is a great resource; however, it is the overachievers that use it. The patients that need it most are not motivated and the process is overwhelming...I have had little feedback that the patients gain a great benefit from it. The AWC staff is

limited by what they can provide to patients. I have not seen stellar results from the AWC. If patients go, they do get benefit, however, does the benefit last longer than the sessions? I am not sure. I have tried to refer patients for one resource, like biofeedback, and the patients have to do a 2-hour intake and health assessment. The patients lose interest fast. It is not ideal that the AWC is located off site from the clinic. It is an additional barrier. I have not had any patients get amazing benefit from it. The patients we see need a different service and it is not tailored to the patients. The biggest benefit would be to expand behavioral health services. Our most complicated patients have a BH component. The clinic would benefit from a Psychiatric provider, more therapists, and alternative therapies for sleep and pain.”

This quote, though expressed quite negatively, expresses some of the concerns that came up in the semi-structured interviews with PCMH staff members. One PCMH Staff Member discussed her frustration with preventive medicine in general in her interview, stating that the people who could really benefit from intervention are never the ones who actually participated. Both she and another Staff Member mentioned AWC services could overwhelm their patients. This quote also expresses a common misunderstanding of AWC assessments that many PCMH staff members held; several were under the impression that all assessments must be done at once. It also echoes the comments of the other staff members, who desired the AWC facility be co-located with their MTF. The last point that the PCMH Staff Member has made here is in regards to behavioral health benefits. Again, this is similar to other information derived from the PCMH staff member interviews; PCMH staff members desired a multitude of other services, including behavioral health.

7 Strengths and Limitations

7.1 Strengths

Two strengths of the current evaluation are worth highlighting. First, the survey employed in this evaluation was developed with input from regional and local PCMH leadership, which helped ensure that survey questions and response options were relevant and meaningful to the PCMH staff members who responded to the survey respondents. Second, local PCMH leadership provided ongoing support to help maximize the response rate for the survey by identifying the entire population of PCMH staff members at Carlisle Barracks' MTF, clearly communicating the purpose of the survey to them, alerting them as to when the survey was going to go live, and sending periodic reminders to them to encourage survey completion. The leadership also helped ensure that the survey could be completed within a reasonable amount of time (10 minutes) in order to further encourage its completion. Survey response rate was reasonably high given the time constraints that are common among MTF staff members. Lastly, the mixed-methods approach to understanding the collaboration of AWC and PCMH helps better understand the bigger picture.

7.2 Limitations

There are several limitations to this evaluation worth noting. First, the survey was only administered to the PCMH staff members of one Army installation. Therefore, the results of this evaluation may not necessarily generalize to other PCMHs and AWCs. Similar evaluation efforts should be conducted at additional installations. Further, the results of this evaluation may not even generalize within this particular PCMH. Since the differences between staff members that did and did not respond are unknown, it is unclear whether the results observed herein represent the entirety of this PCMH.

Second, the data collected as part of this evaluation were exclusively self-reported. Self-reported data are sensitive to recall and response biases that can increase the potential for inaccurate results. This is particularly true because the clinic at Carlisle Barracks was small and there may have been a fear of identification because in some instances, only one person fulfilled a designated PCMH role. For example, there was only one clinical pharmacist and one dietitian. Thus, providers may not have fully responded due to a perceived lack of anonymity, which may have limited available data or caused them to respond in more ways that are desirable. Hopefully, this was mitigated by the written assurance of the survey's anonymity on the homepage.

Third, there were some limitations related to the questions asked and the people who were included in the surveys. No PCMH staff members indicated that they performed an administrative role. This may have been because the category of MSA overlapped. In addition, pediatric staff members were included in the PCMH survey, but they would not typically interface or refer to AWCs because, generally, AWCs only serve adult clients, and require medical clearance to serve pediatric clients. Therefore, pediatric PCMH staff members were unable to answer the majority of questions related to AWCs and thus reduced sample size. Lastly, some confusion may have been caused by a survey question that asked about AWC staff member participation in medical home huddles. Although the AWC staff members reported that their PL always attended huddle meetings, and all PCMH staff members interviewed agreed, survey results showed that AWC staff members never or rarely participated. The wording thus may need to be adjusted in future, from "participated" to "attended," since the verbiage "participated" may have connoted actively discussing and engaging in the meeting, rather than just listening and being present. It may be important to separate participation from attendance to have a better understanding of PCMH and AWC collaboration.

Fourth, emerging initiatives created competing priorities that may have affected PCMH staff members' views about the AWC and collaboration efforts. These contextual factors were out of the evaluators' control, but must be noted.

8 Conclusions

Overall, an encouraging amount of collaboration exists between Carlisle Barracks' AWC and PCMH, but there are specific areas upon which collaboration could be improved.

8.1 Extent to Which PCMH Staff and AWC Staff are Aware of Each Other's Services Provided and Staff Competencies

Both AWC and PCMH staff members were very aware of each other's services and understood their missions, although there was some room for improvement on both sides. PCMH staff members held some misinformation regarding AWC services and assessment procedures, while AWC staff members openly admitted that they would like more information on the MTF's classes and services. Despite the misinformation identified in the PCMH staff member interviews, almost all of the AWC core programs were correctly identified (88-100% of the time), with the exception of tobacco education, which only 35 percent of PCMH staff members endorsed. Although they were well-versed in AWC services, PCMH staff members reported desiring a wide variety of other AWC services that were not offered, thus demonstrating a lack of knowledge about the expectation for standardization across the AWC enterprise. AWC and PCMH staff members also had a positive impression of each other, with 65 percent of PCMH staff members reporting that they were extremely confident in AWC knowledge and skills. Interestingly, the AWC staff members reported

feeling more integrated with the PCMH, while the PCMH staff members did not necessarily feel unity with the AWC, and were more likely to view them similar to an outlying clinic. AWC staff members visited the clinic much more frequently than the PCMH staff members visited the Wellness Center. PCMH staff members in particular expressed a desire for more AWC marketing, including additional brochures/pamphlets and even testimonial videos. Nearly all PCMH staff members (94%) did report; however, having been briefed by AWC staff members and the majority (50%) was moderately satisfied with that briefing. In total, 29 percent of PCMH staff members indicated that an AWC briefing was the way they first heard about AWCs.

8.2 Barriers and Facilitators to Referral

The majority of PCMH staff members (76%) who took the survey indicated that they were aware they could make referrals to the AWC and had done so, and the majority (32%) reported that AWC staff members were always responsive to their referrals. Of all PCMH staff members who indicated they did not refer, they would not have been able to because they were not a privileged provider or they were a pediatrician. Similarly, in the semi-structured interviews all PCMH staff members indicated they had at least informally recommended the AWC to patients and most PCMH staff members indicated that they had completed a formal referral with documentation. AWC staff members indicated that PCMs were most likely to refer clients to them.

PCMH staff members were much more likely to endorse barriers to referral than facilitators. They felt their schedules and patient load made it difficult to refer patients to the AWC, and expressed a desire only to refer patients when the patients were ready to make a change for themselves or were interested in the AWC's services. Other barriers to referral stemmed from misunderstanding or miscommunications with the AWC. For instance, many PCMH staff members were under the impression that the AWC assessments had to be done all at once, which did not always suit their clients; felt that the AWC duplicated services already taking place at the clinic; and wanted communication about whether their patients had actually made an appointment with the AWC.

In contrast, AWC staff members felt that there were many more facilitators than barriers to referral. The AWC staff members cited the following:

- Having face time with the PCMH staff members;
- Feeling united with the clinic;
- Teaching PCMH staff members how to make referrals to their AWC;
- AWC placement on the new provider check-in sheet;
- PCMH staff members using the AWC services; and
- Outside and/or leadership endorsement of the local AWC or AWC enterprise as facilitators to their receipt of referrals from the PCMH.

Several barriers were noted as well, however. For instance, AWC staff members would like—

- More guidelines about when to refer clients to specialists (such as PT or behavioral health services).
- Guidance about what information to send back to the provider once a client has been seen.
- More information on why a client has been referred to the AWC.
- Guidance about signs and symptoms that would precipitate a referral to the client's PCM.
- More information on classes and other services offered at the MTF.

The last barrier to referral that AWC staff members alone experienced were not being granted access to formally refer patients to the PCMH. Both AWC and PCMH staff members cited high turnover as a barrier to referrals.

In general, AWC staff members were able to give more information about the frequency and reasons for referrals than PCMH staff members. AWC staff members referred clients primarily to their primary care physician for red flags, including high blood pressure, slow resting metabolic rate, suspected thyroid problems, high cholesterol, potential heart disease symptoms, diabetes indicators, autoimmune disorders, injuries or pain, and mental health. AWC staff members reported they both gave and received referrals infrequently, though they were more likely to do either with informal referrals.

8.3 Differentiation between Formal (Documented) and Informal (Undocumented) Referrals

PCMH staff members were more likely to make informal referrals (85%) when compared to formal referrals (69%). For both, the majority of providers reported making only one referral in the last month, although 45 percent made an informal referral (most commonly reported way was through informing patients about the AWC) and 22 percent made a formal referral. Similarly, the percentage of PCMH staff members following the *AWC Annex to the Patient Centered Medical Home (PCMH) Operations Manual* referral guidelines was larger when making informal referrals (45%) than when making formal referrals (33%). In total, the most common referral mechanism reported was tied, with 31 percent of PCMH staff members indicating that they referred in AHLTA/CHCS and 31 percent of PCMH indicating that they just informed patients about the AWC.

PCMH staff members were less likely to make formal referrals than informal referrals because they reserved formal referrals for patients who were very interested in AWC services or ready to follow-through, rather than for all patients. They also noted that barriers with AHLTA/CHCS could potentially make putting in a formal referral difficult or time-consuming. AWC staff members were not knowledgeable in the process of making a formal referral, but were able to describe the process, and what permissions would be necessary to do so.

Informal referrals were much more common than formal referrals. AWC staff members made informal referrals to PCMH staff members by recommending a client visit their doctor, calling for a client to make an appointment at the clinic, or walking the client over to the clinic in an emergency situation. Informal referrals made from the PCMH to the AWC are tracked in an excel spreadsheet by AWC staff members, and have an approximate 90 percent booking rate.

8.4 Barriers to Using Secure Messaging

The majority (76%) of PCMH staff members reported never using AMSMS, and 71 percent reported AWC staff members never used AMSMS. Further, 88 percent of PCMH staff members reported that they communicated with AWC staff members about patients with AMSMS never. Barriers reported included preferring to use more traditional communication methods, lack of patient interest, being unaware that the AWC used AMSMS, not having an AMSMS account, not knowing how to use AMSMS, time, inconvenience, and difficulty using AMSMS. When semi-structured interviews were conducted, it was found that the PCMH staff members were unaware that AMSMS could be used to communicate with other providers, and reported it was primarily used as a communication system with their patients, which generally gave them a negative attitude towards

AMSMS, since communicating with patients took a lot of time. The primary users of AMSMS are nurses in the PCMH. AWC staff members were unaware of the details of AMSMS and had never used it.

8.5 Communication between the AWC and PCMH Staff

AWC staff members primarily initiated communication. Although PCMH staff members were not adverse to communication with AWC staff members, they felt it was unnecessary unless there were issues. On the rare occasions when PCMH staff members communicated with AWC staff members, they did so during staff huddles, provider briefs, or when co-teaching classes. While AWC staff members primarily communicated with PCMH staff members in person as well, they collectively reported communicating with PCMH staff members on a daily basis, with the HPT and PL standing out as conduits to PCMH staff members. On the survey, the majority of suggestions to help improve the connection between PCMH and AWC staff members were related to communication, and suggested increased nurse briefings, conducting training on referral criteria and methods, and general meetings between staff members.

9 Recommendations

9.1 Recommendations to Increase Collaboration between AWCs and PCMHs

Based on the results of the current evaluation, recommendations for AWC Operations and other Staff members to improve collaboration between PCMH and AWC staff members are proposed below.

9.1.1 Increase Marketing to PCMH Staff

PCMH staff members demonstrated incomplete knowledge about AWC core programs, assessment processes, standardization efforts, evidence-based programming, referral criteria, and the referral process. In regards to AWC core programs, many providers did not know that tobacco education was a core AWC service provided. Therefore, it is recommended that tobacco education in particular be marketed more thoroughly to PCMH staff members.

9.1.2 Increase Marketing to Potential Clients

Evaluation results showed that PCMH staff members desired more marketing material to give to patients and spread the word about AWCs in general. Potential marketing materials to provide included pamphlets/brochures, business cards, posters, videos, and/or an AWC booth set up in the lobby of the MTF. Because PCMH staff members indicated they often ran out of marketing materials such as brochures, it is recommended that AWC staff members either provide brochures at regular intervals or provide a platform from which PCMH staff members can print out additional marketing materials themselves, such as in the APHC Health Information Products e-Catalog. Further, the PCMH staff members discovered that posters hanging in patient rooms are highly regulated. Therefore, to increase marketing to patients while they are waiting to see their PCMH provider, it is advised that AWCs determine local regulations for patient-room posters and create posters to comply, so that marketing in this area of the MTF can take place.

9.1.3 Increase Face-to-Face Interactions with PCMH Staff

The primary ways that PCMH staff members interact with AWC staff members are through face-to-face interactions such as provider briefs held by the AWC and during huddle meetings, since PCMH staff members report time barriers to communicating via email or phone. Holding multiple provider briefs per year would better accommodate new MTF staff members coming in. In provider briefings, it is recommended to discuss referral criteria and how to make a referral, to foster collaboration efforts. Further, introductory and refresher briefings can reinforce consistent messaging about AWCs and provide AWC staff members an avenue for discussing evaluation-based feedback, such as the recommendations included in this report or information related to the *AWC Prospective Outcomes Report*.

9.1.4 Ensure that New AWC Staff Members are Socialized with PCMH Staff

Staff turnover and not knowing all the AWC staff members at any given time were reported barriers to PCMH staff members referring patients to AWCs. Therefore, it is critical that all AWC staff members be introduced to PCMH staff members. Since huddle meetings are one of the primary ways that AWC and PCMH staff members interact, it is recommended that new AWC staff members are introduced at the huddle meeting and that, in addition to the PL, other AWC staff members attend the huddle meetings at regular intervals, perhaps on a rotational basis so that client appointments are not affected too drastically. Ensuring regular contact with AWC staff members other than the AWC PL may help encourage PCMH staff members' confidence in AWC staff members' abilities. Further, when new AWC staff members are introduced, their credentials, education and training, and ability to meet rigorous AWC competencies can be highlighted, which will hopefully increase PCMH staff members' confidence in these (primarily) young staff members.

9.1.5 Ensure that New PCMH Staff Members are Included on the MTF In-Processing Checklist

This will ensure that new PCMH staff members are familiar with the AWC, and will provide them a chance to see and experience the AWC for themselves, which was a facilitator to PCMH staff member referrals to the AWC. It is also an opportunity to further market AWC services and provide relevant information to PCMH staff members. In addition to the in-processing checklist, perhaps holding frequent open houses with continuing education credits offered would help bring in PCMH staff members to experience the AWCs and incentivize their participation.

9.1.6 Provide Referral Guidelines to AWC Health Educators

AWC health educators reported not knowing what "red flag" issues should be referred back to the PCM or other providers, including the PT and behavioral health. It is recommended that AWC Operations create guidelines that can be adopted enterprise-wide or that local AWCs work with a willing PCMH staff member to create guidelines that would be mutually beneficial.

9.1.7 Increase Local Communication between AWC and PCMH Staff About Referrals

Both AWC and PCMH staff members would like more information shared about their mutual clients when a referral was made. It is recommended that AWC staff members share the kind of

information they would like to see in a referral note, so that they can best treat their clients via face-to-face communication such as a provider brief or in a huddle meeting. It is also recommended that AWC staff members contact PCMH staff members after they have seen a referral client. This should allow for increased continuity of care and will ensure that the client does not receive conflicting guidance. Working with a willing PCMH staff member to determine the type, length, and content of communication about mutually shared referral clients would be beneficial.

9.1.8 Allow AWC Staff to Make Formal Referrals Back to the PCMH

Allowing AWC staff members to make formal referrals would help increase collaboration and would ensure that at-risk clients are provided the care they require. It would also make tracking collaboration via referrals to and from the AWC much easier, which serves as one metric for collaboration between the AWCs and PCMH.

9.1.9 Consider Standardizing the Requirement to Formally Document Referrals from PCMH to AWC in AHLTA/CHCS

Fewer than half of PCMH staff had made a formal referral to AWCs within the last 30 days, and most preferred to refer informally when necessary. Reasons for informal referrals were time, trouble with AHLTA/CHCS, and the patient's stage of change. However, when referrals are made informally, they cannot be consistently and accurately monitored. This means that it is difficult, if not impossible, to identify whether appropriate patients are being referred to the AWC, or to evaluate health outcomes for patients who are referred to the AWC. Thus, a requirement that all referrals to the AWC be formally documented in AHLTA/CHCS should be considered carefully. A change to existing PCMH policy may help enforce this potential requirement.

In addition, even when referrals to the AWC are formally documented in AHLTA/CHCS, they are not readily exportable using the Military Health System's Management and Analysis Tool (or M2). This is because "referred to" data that go up to the fourth level Medical Expense Productivity and Reporting System (MEPRS) code are needed to specifically identify referrals made to the AWC (AWCs are identified by MEPRS4 = FBBW), but "referred to" data in the M2 Referrals object class currently only goes up to the third level MEPRS. Thus, in addition to a potential policy change to help enforce formal documentation of referrals to the AWC, adapting the M2 tool so that it readily exports "referred to" MEPRS4 data is proposed.

9.1.10 Consider Expanding the PCMH-to-AWC Referral Criteria to Encompass the Range of AWC Core Programs

Currently, and consistent with published guidelines for referring patients from the PCMH to the AWC, PCMH staff members commonly refer based upon a patient's BMI. While obesity is an important chronic disease risk factor that AWCs can help clients address, there are multiple unhealthy behaviors that AWCs can help clients address. For example, patients who use tobacco, have poor sleep habits, or are interested in stress management techniques might also benefit an AWC referral. If additional criteria were included in the referral process, the published referral guidelines should be updated accordingly.

9.2 Recommendations to Improve Future Evaluations of AWC/PCMH Collaboration

Lessons learned from this evaluation should help guide future evaluations on the collaboration between AWC and PCMH staff members. Information was garnered about the type of staff members to include, as well as about revisions to specific questions.

9.2.1 Ensure That the Correct PCMH Staff are Included and Excluded From the Survey

MSAs were excluded from questions about referrals, because they are not privileged providers, but that assumption may need to be challenged. Data indicates that although MSAs may not be making decisions about which patients to refer, they may be completing the actual referral process if a formal referral in CHCS/AHLTA is required. Pediatric staff members were included for the PCMH staff survey, but may need to be excluded, because the AWCs were primarily designed for adult clients, not children or adolescents, and thus most pediatric staff members had never interacted with their local AWC.

9.2.2 Make Specific Changes to the Survey and Semi-Structured Interviews

If future surveys are deployed to assess the collaboration between AWC and PCMH staff members, several wording changes are recommended. First, when asking about secure messaging (also known as AMSMS), the term "Relay Health" should be included in parentheses, as PCMH staff members recognize the AMSMS system this way. Second, provide a response option for the barriers to AMSMS use to allow PCMH staff members to indicate that although they have an account, their nurses manage it. Third, data collection tools should ask about PCMH staff members' responsiveness to informal versus formal AWC referrals, since some AWCs may have been granted special permissions to make formal referrals. Fourth, consider paring down the number of options for why providers never referred, as the list was quite long and many reasons overlapped somewhat. Fifth, ask providers why they had never referred for both formal and informal referrals, instead of asking about all referrals more generally.

10 Point of Contact

The point of contact for this report is Dr. Meredith Dodd. She may be contacted via e-mail at usarmy.apg.medcom-phc.mbx.hpw-webcontacts@mail.mil or by phone at 410-436-5467.

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Appendix A

References

- APHC (Prov). 2015. Public Health Assessment Report No. S.0008134-15. A prospective outcomes evaluation of Army Wellness Centers, FY 14.
- APHC (Prov). 2016. Public Health Assessment Report No. S.0008134a-15. An assessment of Army Patient Centered Medical Home and Army Wellness Center collaboration at Fort Carson, Colorado, October 2014 – January 2015.
- Barlas, F.M., W.B. Higgins, J.C. Pflieger, and K. Diecker. 2013. Health related behaviors survey of active duty military personnel. <http://health.mil/Military-Health-Topics/Access-Cost-Quality-and-Safety/Health-Care-Program-Evaluation/TRICARE-Patient-Satisfaction-Surveys/Survey-of-Health-Related-Behaviors> (accessed 1 NOV 2015).
- Bergmo, T.S., P.E. Kummervold, D. Gammon, and L.B. Dahl. 2005. Electronic patient-provider communication: will it offset office visits and telephone consultations in primary care? *Int J Med Inform*, 74(9):705-710.
- Booth, F.W., C.K. Roberts, and M.J. Laye. 2012. Lack of exercise is a major cause of chronic diseases. *Compr Physiol*, 2(2):1143-1211.
- Cancelliere, C., J.D. Cassidy, C. Ammendolia, and P. Côté. 2011. Are workplace health promotion programs effective at improving presenteeism in workers? A systematic review and best evidence synthesis of the literature. *BMC Public Health*, 11(1):395.
- CDC. 2009. The power of prevention: chronic disease, the public health challenge of the 21st century. <http://www.cdc.gov/chronicdisease/pdf/2009-Power-of-Prevention.pdf> (accessed 15 APR 2016).
- CDC. 2012. Steps to wellness: guide to implementing the 2008 physical activity guidelines for americans in the workplace. http://www.cdc.gov/nccdphp/dnpao/hwi/downloads/steps2wellness_broch14_508_tag508.pdf (accessed 12 DEC 2015)).
- CDC. 2015. Chronic disease overview. <http://www.cdc.gov/chronicdisease/overview> (accessed 12 DEC 2015).
- Christensen, E.W., K.A. Dorrance, S. Ramchandani, S. Lynch, C.C. Whitmore, A.E. Borsky, L.G. Kimsey, L.M. Pikulin, and T.A. Bickett. 2013. Impact of a patient-centered medical home on access, quality, and cost. *Mil Med*, 178(2):135-141.
- Cohen, S., D. Janicki-Deverts, and G.E. Miller. 2007. Psychological stress and disease. *JAMA*, 298(14):1685-1687.

- Dall, T.M., Y. Zhang, Y.J. Chen, R.C. Wagner, P.F. Hogan, N.K. Fagan, S.T. Olaiya, and D.N. Tornberg. 2007. Cost associated with being overweight and with obesity, high alcohol consumption, and tobacco use within the military health system's TRICARE prime-enrolled population. *Am J Health Promot*, 22(2):120-139.
- Department of the Army. 2007. Regulation 40-5, *Preventive Medicine*.
- Department of the Army. 2015. Regulation 600-63, *Army Health Promotion*.
- Dorrance, K.A., S. Ramchandani, J. LaRochelle, F. Mael, S. Lynch, and P. Grundy. 2013. Protecting the culture of a patient-centered medical home. *Mil Med*, 178(2):153-158.
- Eilerman, P.A., C.M. Herzog, B.K. Luce, S.Y. Chao, S.M. Walker, L.A. Zarzabal, and D.H. Carnahan. 2014. A comparison of obesity prevalence: Military health system and United States populations, 2009-2012. *Mil Med*, 179(5):462-470.
- Faestel, P.M., C.T. Littell, M.V. Vitiello, C.W. Forsberg, and A.J. Littman. 2013. Perceived insufficient rest or sleep among Veterans: Behavior risk factor surveillance system 2009. *J Clin Sleep Med*, 9(6):577-584.
- Goldzweig C.L., A.A. Towfigh, N.M. Paige, G. Orshansky, D.A. Haggstrom, I. Miake-Lye, J.M. Beros, and M.D. Shekelle. 2012. Systematic review: secure messaging between providers and patients, and patients' access to their own medical record. Evidence on health outcomes, satisfaction, efficiency and attitudes. VA-ESP Project #05-226, 2012. <http://www.ncbi.nlm.nih.gov/books/NBK100364/> (accessed 5 DEC 2106)
- Haun, J.N., J.D. Lind, S.L. Shimada, T.L. Martin, R.M. Gosline, N. Antinori, M. Stewart, and S.R. Simon. 2014. Evaluating user experiences of the secure messaging tool on the veterans affairs' patient portal system. *J Med Internet Res*, 16(3):e75.
- HHS. 2001. The surgeon general's call to action to prevent and decrease overweight and obesity. Rockville, MD: Office of the Surgeon General. <http://www.ncbi.nlm.nih.gov/books/NBK44206/> (accessed 9 SEP 2014).
- HHS. 2008. 2008 Physical Activity Guidelines for Americans. Washington, DC: US Department of Health and Human Services. <http://health.gov/paguidelines/guidelines/> (accessed 17 MAY 2015).
- HHS. 2010. The surgeon general's vision for a healthy and fit nation. Rockville, MD: Office of the Surgeon General. <http://www.ncbi.nlm.nih.gov/books/NBK44660/> (accessed 17 MAY 2015).
- Hoff, T., W. Weller, and M. DePuccio. 2012. The patient-centered medical home: a review of recent research. *Med Care Res Rev*, 69(6):619-644.
- Hoover, T. and K.D. Campbell. 2010. Battling body fat. *US Army Med Dep J.*, April-June:68-71.

- Hruby, A., O.T. Hill, L. Bulathsinhala, C.J. McKinnon, S.J. Montain, A.J. Young, and T.J. Smith. 2015. Trends in overweight and obesity in Soldiers entering the U.S. Army, 1989-2012. *Obesity (Silver Spring)*, 23(3):662-670.
- Hudak, R.P., R. Julian, J. Kugler, K. Dorrance, S. Lynch, M. Dinneen, P. Evans, T. Kosmatka, M. Padden, and M. Reeves. 2013. The patient-centered medical home: a case study in transforming the military health system. *Mil Med*, 178(2):146-152.
- Hunter, C.L. and J.L. Goodie. 2012. Behavioral health in the Department of Defense Patient-Centered Medical Home: history, finance, policy, work force development, and evaluation. *Transl Behav Med*, 2(3):355-363.
- Jean-Louis, G., N.J. Williams, D. Sarpong, A. Pandey, S. Youngstedt, F. Zizi, and G. Ogedegbe. 2014. Associations between inadequate sleep and obesity in the US adult population: analysis of the national health interview survey (1977–2009). *BMC Public Health*, 14(1):290.
- Liederman, E.M., J.C. Lee, V.H. Baquero, P.G. Seites. 2005. The impact of patient-physician web messaging on provider productivity. *J Healthc Inf Manag*, 19(2):81-86.
- Liederman, E.M. and C.S. Morefield. 2003. Web messaging: a new tool for patient-physician communication. *J Am Med Inform Assoc*, 10(3):260-270.
- Logsdon, D.N., C.M. Lazaro, and R.V. Meier. 1989. The feasibility of behavioral risk reduction in primary medical care. *Am J Prev Med*, 5(5):249-256.
- MEDCOM/OTSG. 2016. Army PCMH: The Foundation of Health and Readiness. Retrieved from <http://armymedicine.mil/pages/pcmh.aspx>
- MEDCOM/OTSG. 2014a. Army PCMH Operations Manual. *Leaders Guide to Army Patient Centered Medical Home*.
- MEDCOM/OTSG. 2014b. Army PCMH Implementation Manual. *Leaders Guide to Army Patient Centered Medical Home Transformation*.
- MEDCOM/IMCOM/FORSCOM/AMC/TRADOC. 2011. Memorandum of Agreement: Implementation of USAPHC Health Promotion Initiatives on Army Installations
- Mysliwiec, V., L. McGraw, R. Pierce, P. Smith, B. Trapp, and B.J. Roth. 2013. Sleep disorders and associated medical comorbidities in Active Duty military personnel. *SLEEP*, 36(2):167-174.
- Mokdad, A.H., E.S. Ford, B.A. Bowman, W.H. Dietz, F. Vinicor, V.S. Bales, and J.S. Marks. 2003. Prevalence of obesity, diabetes, and obesity-related health risk factors, 2001. *JAMA*, 289(1):76-79.
- NHLBI. 2011. Your guide to healthy sleep. *NIH Publication* (11-5271). https://www.nhlbi.nih.gov/files/docs/public/sleep/healthy_sleep.pdf (accessed 17 MAY 2015).

- National Institute of Diabetes and Digestive and Kidney Diseases. 2012. Overweight and obesity statistics. *United States Department of Health and Human Services*.
<http://www.niddk.nih.gov/health-information/health-statistics/Pages/overweight-obesity-statistics.aspx> (accessed 25 May 2016).
- Ogden, C.L., M.D. Carroll, B.K. Kit, and K.M. Flegal. 2014. Prevalence of childhood and adult obesity in the united states, 2011-2012. *JAMA*, 311(8):806-814. doi:10.1001/jama.2014.732
- Packnett, E.R., D.W. Niebuhr, S.A. Bedno, and D.N. Cowan. 2011. Body mass index, medical qualification status, and discharge during the first year of US Army service. *Am J Clin Nutr*, 93(3):608-614.
- Public Health Command Region – Europe. 2012. Department of Epidemiology, Army Wellness Center's Preliminary Outcomes Evaluation Report.
- Reyes-Guzman, C.M., R.M. Bray, V.L. Forman-Hoffman, and J. Williams. 2015. Overweight and obesity trends among Active Duty military personnel: A 13-year perspective. *Am J Prev Med*, 48(2):145-153.
- Rivera, L.O., D.D. Jackson, M.S. Rivera, E. Murray, T. Waardenburg, K. Jenkins, D. Wahl, L.A. Mitvalsky and T.A. Hoover. 2016. Building efficiency and quality in health education. *ACSM Health & Fitness*, 20(2):19-23.
- Robroek, S.J., T.I. Van den Berg, J.F. Plat, and A. Burdorf. 2010. The role of obesity and lifestyle behaviours in a productive workforce. *Occup Environ Med*, 68(2):134-139.
- Rodriguez, H.P., L.S. Meredith, A.B. Hamilton, E.M. Yano, and L.V. Rubenstein. 2014. Huddle up!: the adoption and use of structured team communication for VA medical home implementation. *Health Care Manage Rev*, 40(4):286-299.
- Roof, K. and N. Oleru. 2008. Public health: Seattle and King County's push for the built environment. *J Environ Health*, 71(1):24-27.
- Savage, A.I., T. Lauby, and J.F. Burkard. 2013. Examining selected patient outcomes and staff satisfaction in a primary care clinic at a military treatment facility after implementation of the patient-centered medical home. *Mil Med*, 178(2):128-134.
- Scott, K.A., S.J. Melhorn, and R.R. Sakai. 2012. Effects of chronic social stress on obesity. *Curr Obes Rep*, 1(1):16-25.
- U.S. Army Public Health Command (Provisional). 2011. Public Health Assessment Report No. 23-KM-0DNS, A retrospective evaluation of standardized Army Wellness Centers.
- Singh, M., C.L. Drake, T. Roehrs, D.W. Hudge, and T. Roth. 2005. The association between obesity and short sleep duration: a population-based study. *J Clin Sleep Med*, 1(4):357-363.

- Soler, R.E., K.D. Leeks, S. Razi, D.P. Hopkins, M. Griffith, A. Aten, S.K. Chattopadhyay, et al. 2010. A systematic review of selected interventions for worksite health promotion: the assessment of health risks with feedback. *Am J Preve Med*, 38(2 Suppl):S237-S262.
- U.S. Army Public Health Command. 2011. Technical Guide 335, *U.S. Army Wellness Center Installation Implementation Guide*.
- USDA and HHS. 2010. Dietary guidelines for americans, 2010. Washington, DC: U.S. Government Printing Office. <http://www.cnpp.usda.gov/dietary-guidelines-2010> (accessed 17 MAY 2015).
- Wadden, T.A., M.L. Butryn, and K.J. Byrne. 2004. Efficacy of lifestyle modification for long-term weight control. *Obes Res*, 12(S12):151S-162S.
- Willett, W.C. 2002. Balancing life-style and genomics research for disease prevention. *Science*, 296(5568):695-698.
- Willett, W.C., J.P. Koplan, R. Nugent, C. Dusenbury, P. Puska, and T.A. Gaziano. 2006. Prevention of chronic disease by means of diet and lifestyle changes. In D.T. Jamison, J.G. Breman, & A.R. Measham (Eds.), *Disease Control Priorities in Developing Countries* (pp. 833-850). Washington, DC: World Bank.
- Williams J.W., G.L. Jackson, B.J. Powers, R. Chatterjee, J. Prvu Bettger, A.R. Kemper,...and R. Gray. 2012. Closing the quality gap: revisiting the state of the science (Vol. 2: The patient-centered medical home). Rockville (MD): Agency for Healthcare Research and Quality (US); 2012 Jul. (Evidence Reports/Technology Assessments, No. 208.2.) <http://www.ncbi.nlm.nih.gov/books/NBK99094/> (accessed 11 NOV 2016).
- Zhou, Y.Y., T. Garrido, H.L. Chin, A.M. Wiesenthal, and L.L. Liang. 2007. Patient access to an electronic health record with secure messaging: impact on primary care utilization. *Am J Manag Care*, 13(7):418-424.

Appendix B

Patient Centered Medical Home Staff Survey

Survey of Patient Centered Medical Home (PCMH) and Army Wellness Center (AWC) Collaboration

The Army Public Health Center (Provisional) would like to better understand the connections and interactions between the Patient Centered Medical Home (PCMH) and the Army Wellness Center (AWC). We developed this 15-minute survey to request your input. It is important that you complete this survey in one sitting and that you do not discuss your responses with your co-workers. The results from this survey will help inform collaborative efforts between PCMH and AWC to better serve patients.

Your completion of this survey is entirely voluntary and all of your responses will be kept anonymous and confidential. You will not be asked to individually identify yourself at any point in this survey and all survey responses will only be reported in aggregate, not individually. Your decision to complete this survey or not will have no impact on your job or advancement opportunities.

Please do not use the Back button in your browser. Please be sure of your responses before you submit them. Once you submit your responses, please do not go back and change them.

If you agree to complete this survey, then please click "Next" to continue. If you do not wish to participate, then please close your browser now.

If you have any questions or concerns about completing this survey, please contact: usarmy.apg.medcom-phc.mbx.hpw-webcontacts@mail.mil.

Do you agree to participate in this survey?

- Yes <if yes then proceed to Q1>
- No <if no then exit survey>

(Page Break)

1. In what capacity do you **primarily** provide care to patients?

- Physician
- Physician's Assistant
- Nurse Practitioner
- Registered Nurse
- Licensed Practical Nurse or 68W or Certified Nurse Assistant or Health Technician
- Medical Support Assistant

- Pharmacist
- Dietician
- Physical Therapist
- Behavioral Health Provider/Consultant
- Administrative
- Other: _____

2. What team are you on?

- Blue
- Grey
- Other: _____

3. What is the name of the clinic where you **primarily** work?

4. Are you aware that your installation has an Army Wellness Center (AWC)?

- Yes **<if yes then proceed to Q5>**
- No **<if no then end survey>**

5. Have you ever been briefed by AWC staff about the AWC?

- Yes **<if yes then proceed to Q6>**
- No **<if no then proceed to Q8>**

6. Please select all the ways AWC staff has briefed you.

- Newcomer's Brief
- Employee's In-Processing Checklist
- Provider Brief
- Staff Meetings
- Huddles
- Other: _____

7. How satisfied or unsatisfied were you with the AWC staff brief?

- Not at all satisfied
- Slightly satisfied
- Moderately satisfied
- Very satisfied
- Extremely satisfied

8. How did you first hear about the AWC?

- AWC Staff Briefing
- Coworker
- Friend
- Family Member
- Unit Commander, Leader, or Supervisor
- Website
- Advertisement, Flyer, Brochure, Poster, Bulletin
- In-processing or Orientation Brief
- News Media/Article
- Fitness Center
- Other Program or Initiative:
- Other:

9. Are you aware of the services that AWCs provide?

- Yes
- No

10. To the best of your knowledge, which of the following “core programs” do AWCs provide? Please select all that apply.

- Suicide prevention
- Physical fitness
- Health assessment review
- Tobacco education
- General wellness education
- Drug rehabilitation
- Alcohol counseling
- Healthy nutrition
- Stress management
- Don't know

11. How confident or unconfident are you that AWC health educators have the knowledge and skills needed to meet your patient's health education needs?

- Not at all confident
- Slightly confident
- Moderately confident
- Very confident
- Extremely confident

12. How often do you participate in Medical Home Huddle Meetings?

- Never
- Rarely
- Sometimes
- Often
- Always

13. From your perspective, how often does AWC staff participate in Medical Home Huddle Meetings?

- Never
- Rarely
- Sometimes
- Often
- Always

14. Do you know that you can refer patients to the AWC?

- Yes
- No

15. Have you ever referred a patient to the AWC?

- Yes <if yes then proceed to Q17>
- No <if no then proceed to Q16>

16. Which of the following reasons best describes why you have never referred a patient to the AWC?
Please select all that apply.

- I am unfamiliar with the services offered at the AWC
- I do not feel confident that my patients will benefit from AWC services
- I am not confident in the quality of AWC services
- I was unsure if AWC appointments were readily available
- I do not know the criteria for identifying patients to be referred to the AWC
- I am unfamiliar with the process for referring patients to the AWC
- I ask someone else to refer my patients to the AWC
- My current position does not allow me to refer patients to the AWC.
- Informal recommendation for AWC services is easier
- I did not think it was necessary to formally refer patients to the AWC
- It is not part of official policy to refer patients to the AWC
- Referring patients takes too much time out of my day
- I do not feel there is enough time in the day to refer patients to the AWC
- It is the patient's personal choice about whether to use AWC services
- I do not know how to refer in AHLTA/CHCS
- It takes too long to refer in AHLTA/CHCS

- I feel that I can provide my patients with sufficient health education to help them live healthy lives
- My patients do not need AWC services
- My patients do not want AWC services
- There is no AWC where I am located
- Other: _____

<After Q16 is complete, proceed to Q26>

The questions on this page ask about the **informal patient referrals/recommendations** you have made to the AWC. Informal patient referrals/recommendations are those that you **have not documented** in AHLTA/CHCS. For example, word of mouth or providing a pamphlet.

17. Have you ever informally referred/recommended a patient to the AWC?

- Yes **<if yes, then proceed to Q18>**
- No **<if no, then proceed to Q22>**

18. How have you informally referred/recommended patients to the AWC? Please select all that apply.

- I informed patients about the AWC
- I suggested the patient make an appointment with the AWC
- I gave patients a pamphlet on the AWC
- I called the AWC to schedule an appointment for patients
- I walked patients over to the AWC
- I wrote patients a note on a prescription pad
- Other: _____

19. **In the past 30 days**, how many patients have you informally referred/recommended to the AWC? Please provide your best estimate.

- 0 (None)
- 1
- 2
- ...
- 9
- 10
- More than 10
- Don't know

20. In general, on what basis (i.e., criteria) do you decide which patients to informally refer/recommend to the AWC? Please select all that apply.

- Patient has BMI greater than or equal to 30
- Patient has poor dietary habits
- Patient has low level of physical activity
- Patient uses tobacco
- Patient is stressed
- Patient is having problems sleeping
- Patient is interested in AWC services
- Patient has a weight-related condition
- Patient is willing/ready to make lifestyle change
- Other: _____

The questions on this page ask about the **formal patient referrals** you have made to the AWC. Formal patient referrals are those that you **have documented** in AHLTA/CHCS.

21. Have you ever formally referred a patient to the AWC?

- Yes <if yes, then proceed to Q22>
- No <if no, then proceed to Q24>

22. **In the past 30 days**, how many patients have you formally referred to the AWC? Please provide your best estimate.

- 0 (None)
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- ...
- 9
- 10
- More than 10

23. In general, on what basis (i.e., criteria) do you decide which patients to formally refer to the AWC? Please select all that apply.

- Patient has BMI greater than or equal to 30
- Patient has poor dietary habits

- Patient has low level of physical activity
- Patient uses tobacco
- Patient is stressed
- Patient is having problems sleeping
- Patient is interested in AWC services
- Patient has a weight-related condition
- Patient is willing/ready to make lifestyle change
- Other: _____

The questions on this page ask about **all of the patient referrals, whether formal or informal**, that you have made to the AWC.

24. What mechanism do you **most commonly use** to refer patients to the AWC?

- I use the referral system in AHLTA/CHCS
- I inform patients about the AWC
- I suggest patients make an appointment with the AWC
- I give patients a pamphlet on the AWC
- I call the AWC to schedule an appointment for patients
- I walk patients over to the AWC
- I write patients a note on a prescription pad
- Other: _____

25. In general, how often are **AWC staff** responsive to **your** referrals? Please provide your best estimate.

- Never
- Rarely
- Sometimes
- Often
- Always

(Page Break)

26. In general, how often would you say that **AWC staff** use secure messaging to communicate with **you** about patient care?

- Never
- Rarely
- Sometimes
- Often
- Always

27. In general, how often would you say that you use secure messaging to communicate with AWC staff about patient care?

- Never
- Rarely
- Sometimes
- Often
- Always

28. Of all patients you have referred to the AWC: What percentage of patients did you communicate with AWC staff about via SMS? Please provide your best estimate.

- 0%
- 10%
- 20%
- 30%
- 40%
- 50%
- 60%
- 70%
- 80%
- 90%
- 100%

29. What barriers keep you from using SMS? Please select all that apply.

- I don't have an SMS account.
- I don't know how to use SMS.
- Using SMS takes up too much time.
- Using SMS is inconvenient.
- I don't see when SMS messages arrive.
- I rarely check my SMS account.
- I don't know how to access my SMS account.
- Using SMS is unnecessary.
- SMS is difficult to use.
- I am unable to reach others via SMS.
- I have experienced no barriers.
- Other: _____

30. What suggestion(s) do you have to help improve collaboration between PCMH and AWC?

Survey Complete!

Thank you for taking the time to complete this survey - we sincerely value your input!
You can now close your browser.

Appendix C

Email Distributing the PCMH Staff Survey

SUBJECT:

Help strengthen the collaboration between PCMH and the Army Wellness Center

BODY:

The Army Public Health Center's (APHCs) mission is to enhance Army readiness by identifying and assessing current and emerging health threats, developing and communicating public health solutions, and assuring the quality and effectiveness of the Army's Public Health Enterprise. One of the key assets in this Enterprise is the Army Wellness Center (AWC).

In reference to the Army Wellness Center (AWC) Annex to the Army Patient Centered Medical Home (PCMH) Operations Manual, 31 May 2013, APHC would like to learn more about the collaboration efforts that exist between the Army Wellness Center (AWC) and the Patient Centered Medical Home (PCMH), in order to better understand and implement best practices. To assist with this, APHC created a 15 minute, anonymous survey that asks about the extent to which PCMH staff is aware of AWC services, AWC staff competencies, the patient referral process, and the use of secure messaging between PCMH and AWC staff. Your completion of this survey will help identify ways to strengthen collaboration efforts between the AWC and PCMH. Increasing collaboration between the PCMH and AWC will result in better patient care and may ultimately help decrease the prevalence of chronic behaviorally-mediated diseases.

Your decision to complete this survey will have no impact on your job or advancement opportunities and your responses will remain anonymous. We therefore encourage you to complete this survey as honestly as possible.

Survey link:

The survey will be open until May X 2016. Thank you for your support!

If you have questions, please contact Dr. Meredith Dodd at usarmy.apg.medcom-phc.mbx.hpw-webcontacts@mail.mil or 410-436-5467.

Very Respectfully,
Meredith

Appendix D

Semi-Structured Interview with PCMH Staff

Hello, my name is [insert facilitator name]. I am part of the Army Public Health Center (Provisional) Public Health Assessment Program, and evaluate the Army Wellness Center. We have been invited to interview health care providers to better understand the collaboration between the Army Wellness Center and the MTF.

I want to assure you that I am not part of any investigation and I am not inspecting you or your staff. The purpose of this interview is to listen and to capture your thoughts and experiences, so that we can better understand how the Army Wellness Center and PCMH interact. We encourage you to participate freely in this discussion and to answer questions honestly. There are no right or wrong answers. The findings of the interviews completed as part of this project will be described in a technical report, however, no participant will be individually identified and all information will be reported in aggregate form.

The interview will take 20 minutes. The discussion will be recorded using a digital recorder, but nothing you say will be tied specifically to you. I will be taking notes, but in our experience, this only allows me to capture about 30 percent of what is said. Recording the session will help ensure I capture the discussion accurately, as this is very valuable information to us. Please know that anything you say will remain confidential. The only people with access to the interview recordings and notes will be the Army Public Health Center (Provisional) Public Health Assessment Program project evaluators.

Do you consent to having the interview recorded?

[If the interviewee is uncomfortable, answer any questions they might have and then continue the interview. If the interviewee no longer wants to be interviewed, end the phone call].

Thank you for your consent. Do you have any questions before we begin?

[Answer any remaining questions and then move forward and start the recording].

I will pose a series of questions, but please free to jump in if any questions need clarity or you simply have some additional information to provide.

1. What are your perceptions of AWCs?
2. What do AWCs do?
3. Have you physically gone to the AWC? Why or why not?
4. Have you interacted with the AWC staff?
If yes: 5. What are the AWC staff like?
6. Do you think what AWCs do are important?
If yes: 7: Why is it important?
If yes: 8. What part of AWCs do you think is most important?

9. Do you refer patients to the AWC?

If yes: 10. How often do you refer patients to the AWC?

If yes: 11. How do you refer patients to the AWC?

If Informally: 12. Why don't you use the CHCS referral process to refer to AWCs?

If Informally: 13. What are the advantages to using an informal versus a formal referral?

If no: 14. Why don't you refer patients to the AWC?

If no: 15. What would encourage you to refer patients to the AWC?

16. Does the AWC ever informally refer/recommend patients to you?

If yes: 17. What happens with those informal referrals/recommendations?

If yes: 18. How often do you receive informal referrals/recommendations?

19. Do you communicate with the AWC staff?

If yes: 20. How do you communicate with the AWC staff?

If yes: 21. How often do you communicate with the AWC staff?

If no: 22. Why don't you communicate with AWC staff?

If no: 23. Do you want to communicate with AWC staff?

If no: 24. What would make it easier for you to communicate with AWC staff?

Thank you for participating in this interview. All of the information you shared today will assist us in better understanding the collaboration between PCMH and AWCs and how it might be improved. If you have any questions or anything additional you'd like to discuss with us, please let us know. I can be reached at 410-436-5467 or usarmy.apg.medcom-phc.mbx.hpw-webcontacts@mail.mil.

[Answer any remaining questions]

Appendix E

Semi-Structured Interview with AWC Staff

Hello, my name is: [insert facilitator name]. I am part of the Army Public Health Center (Provisional) Public Health Assessment Program, and evaluate the Army Wellness Center. We have been invited to interview health care providers to better understand the collaboration between the Army Wellness Center and the MTF.

I want to assure you that I am not part of any investigation and I am not inspecting you or your staff. The purpose of this interview is to listen and to capture your thoughts and experiences, so that we can better understand how the Army Wellness Center and PCMH interact. We encourage you to participate freely in this discussion and to answer questions honestly. There are no right or wrong answers. The findings of these interviews will be described in a technical report, however, no participant will be individually identified and all information will be reported in aggregate form.

The interview will take 20 minutes. The discussion will be recorded using a digital recorder, but nothing you say will be tied specifically to you. I will be taking notes, but in our experience, this only allows me to capture about 30 percent of what is said. Recording the session will help ensure I capture the discussion accurately, as this is very valuable information to us. Please know that anything you say will remain confidential. The only people with access to the interview recordings and notes will be the Army Public Health Center (Provisional) Public Health Assessment Program project evaluators.

Do you consent to having the interview recorded?

[If the interviewee is uncomfortable, answer any questions they might have and then continue the interview. If the interviewee no longer wants to be interviewed, end the phone call].

Thank you for your consent. Do you have any questions before we begin?

[Answer any remaining questions and then move forward and start the recording].

I will pose a series of questions, but please free to jump in if any questions need clarity or you simply have some additional information to provide.

1. What are your perceptions of PCMH?
2. What does PCMH do?
3. Have you physically gone to the MTF? Why or why not?
4. Have you interacted with the PCMH staff?
If yes: 5. What are PCMH staff like?
6. Do you refer patients to PCMH?
If yes: 7. How often do you refer patients to the PCMH?
If yes: 8. How do you refer patients to the PCMH?
If yes: 9. Do you refer patients to the registered dietician or PT in PCMH?

If yes: 10. What other components of PCMH do you frequently refer to?
If no: 11. What would encourage you to refer patients to the PCMH?

12. Do you communicate with the PCMH staff?

If yes: 13. How do you communicate with the PCMH staff?

If yes: 14. How often do you communicate with the PCMH staff?

If no: 15. Why do you not communicate with PCMH staff?

If no: 16. Do you want to communicate with PCMH staff?

If no: 17. What would make it easier for you to communicate with PCMH staff?

Thank you for participating in this interview. All of the information you shared today will assist us in better understanding the collaboration between PCMH and AWCs and how it might be improved. If you have any questions or anything additional you'd like to discuss with us, please let us know. I can be reached at 410-436-5467 or usarmy.apg.medcom-phc.mbx.hpw-webcontacts@mail.mil.

Glossary

Abbreviations

ACSM

American College of Sports Medicine

AHLTA

Armed Forces Health Longitudinal Technology Application

AMH

Army Medical Home

AMSMS

Army Medicine's Secure Messaging Service

APHC

U.S. Army Public Health Center

AWC

Army Wellness Center

BMI

Body Mass Index

CDC

Centers for Disease Control and Prevention

CHCS

Composite Health Care System

DA

Department of the Army

HAR

Health Assessment Review

HE

Health Educator

HEDIS

Healthcare Effectiveness Data and Information Set

HHS

United States Department of Health and Human Services

HPT

Health Promotion Technician

LPN

Licensed Practical Nurse

MEDCOM

U.S. Army Medical Command

MEPRS

Medical Expense and Performance Reporting System

MHS

Military Health System

MTF

Military Treatment Facility

MOA

Memorandum of Agreement

MSA

Medical Support Assistant

NCQA

National Committee for Quality Assurance

NHLBI

National Heart, Lung, and Blood Institute

NP

Nurse Practitioner

OPORD

Operational Order

PCM

Primary Care Manager

PCMH

Patient Centered Medical Home

PHRB

Public Health Review Board

PHAD

Public Health Assessment Division

PL

Project Lead

PT

Physical Therapist/Therapy

RHC

Regional Health Command

SAS

Statistical Analysis System

USAPHC

U.S. Army Public Health Command

USDA

United States Department of Agriculture