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Student Impact on Health: Providing Collaborative Care to Underserved Populations with the Implementation of a Mobile Health Program

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Abstract

In recent years nursing programs have turned away qualified applicants, citing one reason as a lack of clinical sites. Additionally, traditional nursing curriculum is now challenged to meet the differing needs of health care and shift nursing education from acute care settings to focus on community, and public health. This shift challenges nursing programs to educate students on the needs of communities, particularly rural communities. The challenges of rural health and the need for clinical training sites, led to the implementation of a University based Mobile Health Program. The Mobile Health Program had three goals; provide preventive health screenings to underserved populations in rural areas; provide clinical training sites for nursing students; and provide an opportunity for inter-professional collaboration amongst students at the university. The project began spring of 2015, with just 3 clinical sites, and has increased to 26 clinical sites in Spring 2017. Services offered to individuals included physical examinations, screening for diabetes and heart disease. Thus far, 2,952 patients were served and over 9,405 clinical and service learning hours logged in by the students. Several individuals were referred on for an urgent health concern. It was concluded that if the program is thoroughly explored, developed and well-funded, it could greatly improve the capacity of universities to train more nurses on yearly basis. It could also significantly encourage inter-disciplinary collaborations and ultimately improve rural health.

Keywords: Students Impact on Health, Mobile Health, Inter-Professional Collaboration, Underserved Populations.

Introduction

The United State Census Bureau defines Urban Areas as 50,000 or more people; Urban Clusters as having a minimum of 2,500 but less than 50,000 people: and Rural as all populations, territories or housing not included in any urban area or cluster, (Health Resources and Services Administration, 2017). Although only 17% of the US population is noted to live in a rural area, 65% of all US counties are classified as nonmetropolitan or rural counties (Meit, *et al*., 2014).

The complexities of rural health have been prevalent throughout history, however, in the 1920's the structure and curriculum of medical schools in the United States was changed to add rigor and consistency. These changes ultimately led to closure of many medical schools in outlining and rural areas and ultimately began the shortage of physicians practicing in rural America (Beck, 2004). Today the health and well-being of populations living in rural areas is a concern for many reasons. The shortages of physicians in rural areas still remains, as many areas are far below the national recommendation of 631 persons per primary provider (Riordan &Capitman, 2006). This phenomenon is not just limited to the rural areas of the United States, global researchers have identified similar issues in other countries, especially with attempting to recruit and retain health care professionals to practice in rural and remote areas (Hegney*et al.,* 2006).

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The World Health Organization report in 2009, identified most health professionals prefer to work in urban areas, where higher rates of pay and career opportunities are often better than rural areas (Dolea, Braichet& Shaw, 2009). Along with the decreased number of providers, there are also very few clinics and hospitals located in rural areas. 2015 statistics acquired from The American Hospital Association (AHA) compared the percentage of urban hospitals at 62% with those of Rural Hospital at 32% (AHA, 2017). With the shortage of health services in rural areas, coupled with transportation difficulties, rural dwellers have limited access to health care. US statistics indicates nearly 6% of rural household do not have access to private vehicles. In addition, 21% of those individuals over the age of 65 years do not drive. The use of public transportation, if available, makes for a very long journey to access health services (American Public Transportation Association, nd). The lack of access to health care directly affects those in rural areas by hindering access to preventive health services including but not limited to diabetes and heart disease checkups, in addition to compromising wellness and healthy lifestyle programs (Meit*et al*., 2014).

There are also many health disparities that exist in rural populations that differ than inner cities. Those living in rural areas are exposed to environmental hazards due to agricultural pollution of air, water and soil. Typically, populations in rural areas consist of a higher rate of poverty, lower educational levels and multicultural ethnic groups, which limit access to health information and information on preventive health care (Meit*et al*., 2014).

Cultural demographics of rural communities have continued to change from predominantly White, Non – Hispanic, to multicultural and diverse ethnic communities (Johnson, 2006). Each of these communities brings with them, their own cultural and healthcare beliefs. The increasing ethnic diversity of rural communities presents challenges for health care.

The National Education Association, (NEA), defines cultural competence as a person's ability to be aware of their own cultural identity and have the capacity to learn other cultural and community norms (NEA, 2017). Development of cultural competence lies within the Essential Curriculum Element of human diversity and social issues and is a vital component of any nursing curriculum (Billings, 2011).

Curriculum for Collaboration

According to research data from the American Association of Colleges of Nursing, (AACN), nursing programs across the United States turned away qualified applicants, citing one reason -- the lack of clinical sites (AACN, 2016). In addition, traditional nursing curriculum is being challenged to change to meet the differing needs of health care. Researchers suggest the need to shift nursing education from acute care settings to community, primary and public health (AACN, 2017).

Current research data points to the need for effective collaboration across health care disciplines and community agencies (California State Office of Rural Health, 2012). Collaboration between agencies while encouraged, is proving to be a little difficult. Many agencies providing health care or supportive care, complain of limited access to funding, which limits services they are able to provide. According to Whitehead (2001), the limitation of specific resources and budgetary constraints are the primary hindrances to collaboration. Many funding sources are directed to specific target populations, which limit sharing of resources (Freshman *et al*., 2010).

In addition to budget constraints, health care professionals have been trained to operate only within their specific fields, and rarely cross professional boundaries to meet health care needs (Freshman *et al*., 2010). Professional groups often adopt differing moral and ethical philosophies of care that impedes collaboration. For example, in many rural areas, there still exists a paternalistic, cure-oriented medical model instead of a public health and social advocate type of health care delivery.

The focus on preventive care and public health became even more of a priority when the Patient Protection and Affordable Care Act became law in 2010. This Act permitted the increase in individuals having health care insurance, however, has put bigger strain on health care delivery in the United States. Despite having insurance, many individuals still do not have access to healthcare services, especially preventive care. With the uncertainty of affordable health care in the United States, the Institute of Medicine (IOM), identified the need to focus on preventive, population-based health services rather than illness-focused care (IOM, 2012). Current health care delivery systems need to change to focus on inter-professional collaborative practice to meet the health care needs of communities, families and individuals.

Achieving true collaborative practice will require a learning environment that engages students across healthcare disciplines in service learning with each other (Interprofessional Education Collaborative Expert Panel, 2011).

Implementation of a Mobile Health Program

In view of all challenges discussed above, the Mobile Heath Program was implemented. It began as a grant funded program with three specific project goals, (1) to provide preventive health care education and screening services to an underserved population in rural areas; (2) provide an additional clinical training site for graduate and undergraduate nursing students, and (3) to provide an opportunity for inter-professional collaboration with students from different colleges and programs at the California State University.

The foundation of this program is guided by the Essential Curriculum Elements, developed by the American Association of Colleges of Nursing, as well as the Core Competencies for inter-professional Collaborative Practice set for by the Inter-professional Education Collaborative (2011).

Methodology

The Mobile Health Program's first semester in the spring of 2015, provided three clinic sites, while 12 clinic sites were provided in the fall of the same year. In 2016, the spring program witnessed 15 clinic sites, while 24 clinic sites were available in the fall of that year. In the most recent spring 2017 semester, 26 clinical sites were held due to increased funding. Students were given the opportunity to provide care for vulnerable populations including those from diverse age groups, ethnicities, as well as differing social economical statuses. Services offered to individuals included physical examinations, screening for diabetes and heart disease, blood pressure monitoring, cholesterol checks, random glucose checks and Hemoglobin A1C tests.

Due to resource availability, the clinic sites took various shapes. Some sites were powered by mobile units, while others were not. For the major part of the program, the clinics ran between 9 a.m. and 1 p.m. But on other occasions, the clinics ran between 3 and 9 p.m. All students in participation were from the Fresno State University, particularly the College of Health and Human Services, at both undergraduate and graduate levels. The details of patient participation were recorded for all clinics across the 3-year period.

Results and Discussion

The first program in the spring of 2015, which provided three clinic sites, served a total of 148 patients. In the fall of that same year, 332 patients were served. In 2016, the spring program served 401 patients, while the fall program served 985 patients. In the most recent spring 2017 semester, 26 clinical sites were held, which served a total 962 patients, with a clinic record of serving 154 patients in a 6 hour period of time. For the first three clinics in spring of 2015, only 8 students participated in the mobile health program. Statistics for Student Service Learning hours were not kept at the time, due to limited man power and the pilot nature of the program at that point. Documentation of Student learning hour began in the fall of 2015. Since then, 280 students logged 9,405 clinical and Service Learning hours.

Student participation in the Mobile Health Program was across many disciplines which included undergraduate and graduate nursing students, Kinesiology students, Parks and Recreational students, Athletics students, Dietetics students, Psychology students, as well as students from the The Diabetic Collation and the Nursing Student Organization. Statistics on the number of patients seen and services provided were kept since the first clinic. The Following Graphs indicate the number of clinics scheduled, and the number of patients served at each clinic.

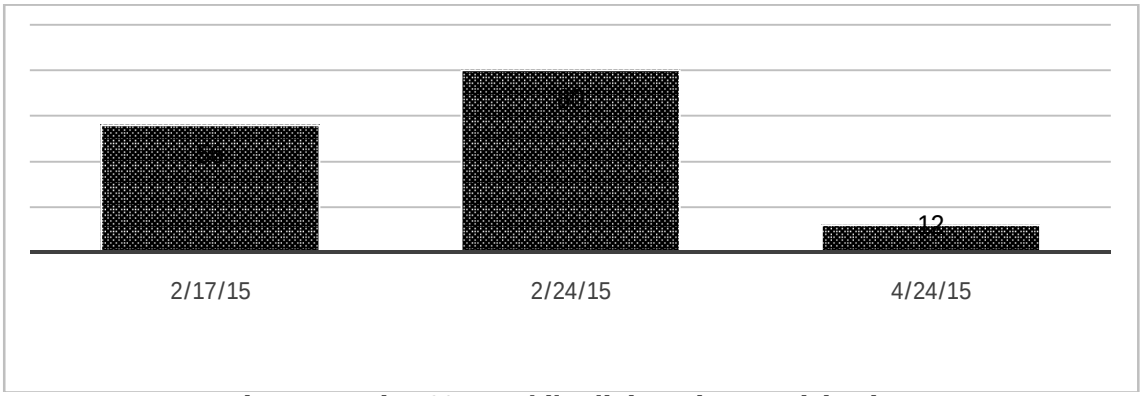

Figure 1: spring 2015 mobile clinic patient participation.

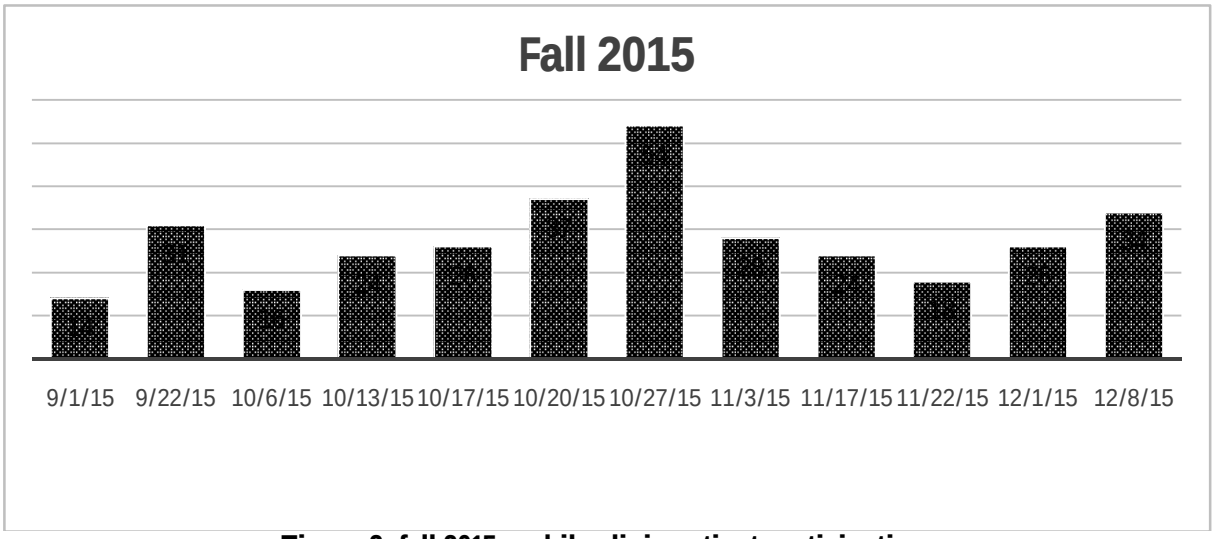

Figure 2: fall 2015 mobile clinic patient participation.

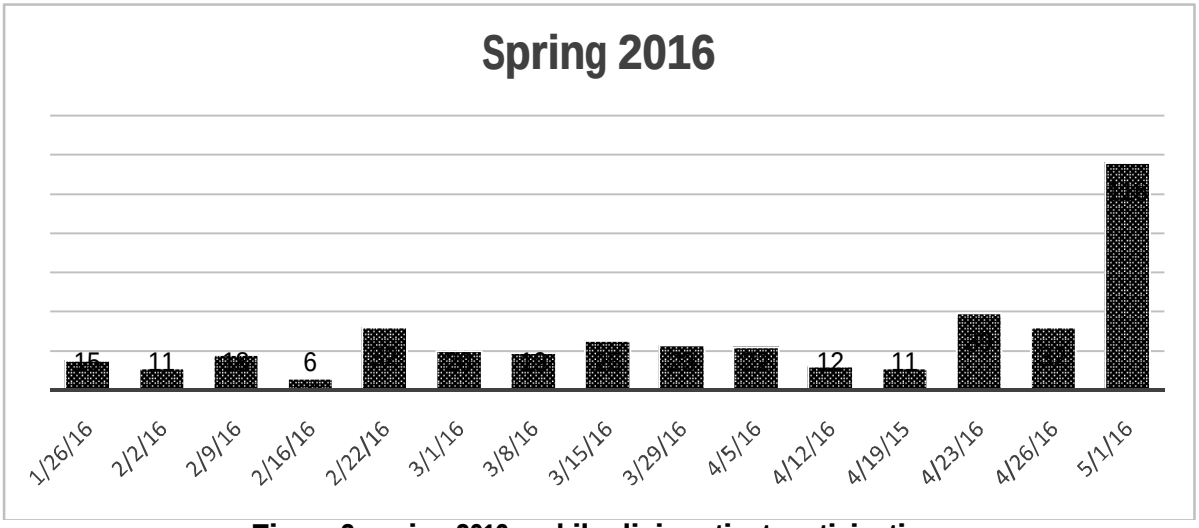

Figure 3: spring 2016 mobile clinic patient participation.

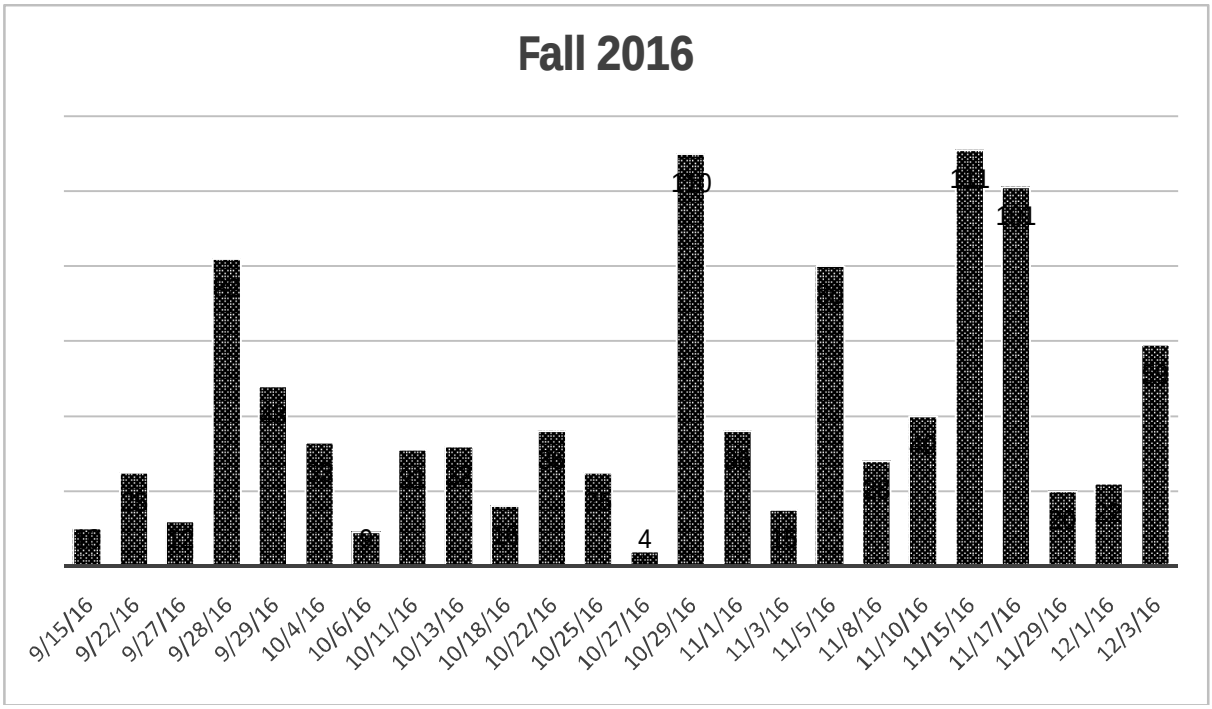

Figure 4: fall 2016 mobile clinic patient participation.

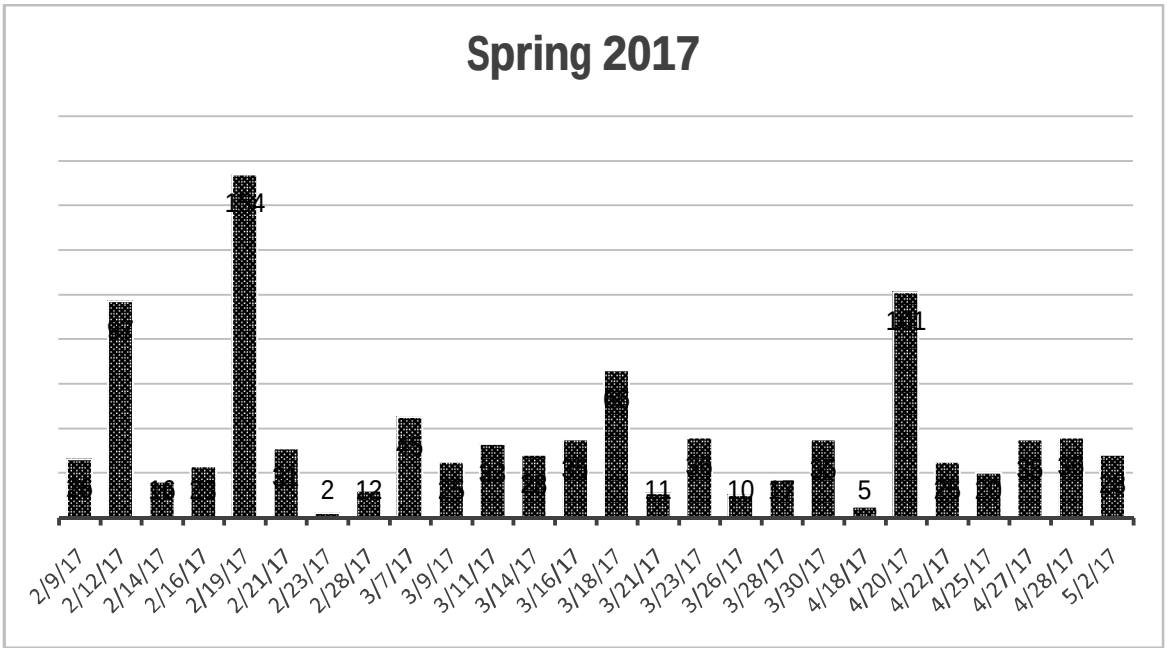

Figure 5: spring 2017 mobile clinic patient participation.

The Graphs above clearly show a steady increase in number of clinics and patient participation from the inception of the program in the spring up until the spring of 2017. This increase is believed to be due to the increase in awareness levels, as a result increased funding.

The media coordinator for the program was extremely diligent in obtaining media attention for the program by sending out the schedule to the community and posting it on social media. However, one point worthy of note is the decrease in amount of patients seen in spring 2017, despite the increase in number of clinics held. This is believed to be due to an issue at Migrant Education Systems, which was one of the clinic sites. There has been a major decrease in the number of patients that attended Migrant Educations sponsored events since January 2017. However, the reason behind this occurrence is unknown.

Many of the underserved communities who have not been able to seek proper health care were able to take advantage of this service and had their health care issues and previously unidentified health concerns addressed. For the 2017 spring program, 49 individuals were referred to the ER, Urgent Care, or their primary doctor, for an urgent health concern such as an abnormally high blood pressure or blood sugar level. In addition to screening services, the program partnered with the local Public Health Department to obtain free flu vaccinations, which provided 477 flu vaccinations to the community during the 2016-2017 flu seasons.

The Mobile Health program provided unique clinical experiences for the students who participated. The program also facilitated the opportunity for inter-professional collaboration, focusing on improving the health statuses of underserved populations. Thus, more American lives, especially those in the rural areas, can be saved.

Conclusion

The Mobile Health Program has allowed the students to better understand the need for community and public health. If this program is thoroughly explored, developed and well-funded, it can be incorporated into the curriculum of universities and this could greatly improve the capacity of such universities to train more nurses on yearly basis. Additionally, having the undergraduate students work alongside the Family Nurse Practitioners (FNP) can eventually inspire many undergraduates to become a Family Nurse Practitioners. This, in turn, can help to meet the need for primary health care providers in underserved areas. Finally, the Mobile Health Program provided a unique opportunity for inter-professional collaboration among the various health care services departments, within the College of Health and Human Services. This is definitely a golden opportunity to bring the best minds together from various fields, with the goal of meeting the needs of underserved populations.

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APPENDIX A

Month	Day/Date	Location
September	Tuesday / 1	Parlier Community Center **(MD**) 14
NO Mobile Unit	9-22-2015	West Fresno Resource Center Screening 68
October	Tuesday / 6	Sanger Community Center **(MD) 20**
October	Tuesday / 13	Reedly Community Center **(MD) 22**
October 17th SAT	Saturday/17	Kerman Commuity Center **(MD) 14**
October	Tuesday / 20	Parlier Senoir Center **(MD) 34**
NO Mobile Unit	10-27-2015	West Fresno Resource Center Screening 72
November	Tuesday / 3	Hope House in Madera **(MD) 32**
November	Tuesday / 17	Hope House in Madera **(MD)22**
NO Mobile Unit	11-22-2015	West Fresno Resource Center Screening 52
December	Tuesday / 1	Firebaugh/St JoesphCathloic Church **(MD)15**
December	Tuesday / 8	Madera Community Center**.(MD**)34

APPENDIX B

1-30-2017	Spring Schedule	Mobile Unit And Screenings/ Spirit of Health	Grant $
Month	Day-Date-Time	Location	
February	Tuesday - 7th -0900-1300	Barthuli Ranch-16145 E McKinley Ave, Sanger (9pts)	Cyndi
February	Thursday - 9th - 1100-1500	WFFRC- Mary Ella Brown Commun. Ctr. 1350 E. Annadale Fresno, CA 93706	Kathi
February	Sunday - 12th - 1300-1700	Our Lady of Mt Carmel Church (Pottle Ave)	Kathi
February	Tuesday - 14th - 0900-1300	Madera Hope House- Valentines Day Celebration 117 N. R Street Madera, CA 93637	Cyndi
February	Thursday - 16th - 0900-1300	Falcon Court Turning Point 4415 N. Clark St. Fresno, CA 93726	Kathi
February	Sunday - 19th- (Confirm)	Health on Wheels- Madera Fairgrounds	Kathi
February	Tuesday - 21st - 0900-1300	GPUSD - San Joaquin Elementary	Cyndi
February	Thursday - 23rd - 0830-1400	Reedley Migrant Health	Kathi
February	Tuesday - 28th - 0900-1300	West Fresno Family Resource Center (Asako) 1802 E California Ave Fresno	Cyndi
March	Tuesday - 7th - 0900-1300	Family Education Center- Orosi- 40802 Road 128 Orosi, CA	Cyndi
March	Thursday - 9th - 0830-1400	Spirit of Woman	Kathi
March	Saturday - 11th - 0900-1300	GPUSD- Cantua Creek	Kathi
March	Tuesday - 14th - 0900-1300	Madera Hope House 117 N. R Street Madera, CA 93637	Cyndi
March	Thursday - 16th- 0900-1300	Spirit of Woman	Kathi
March	Tuesday - 21st - 0900-1300	Dawnings- Dinuba- 682 1st Ave. Dinuba, CA 93618	Cyndi
March	Thursday - 23rd - 1000-1400	WFFRC- Mary Ella Brown Commun. Ctr. 1350 E. Annadale Fresno, CA 93706	Kathi
March	Sunday - 26th - 0900-1300	GPUSD - Tranquility Highschool	Kathi
March	Tuesday - 28th - 0900-1300	Reedly Community Ctr	Cyndi
March	Thursday - 30th - 0830-1400	Spirit of Woman	Kathi
April	Tuesday - 18th - 0900-1300	Parlier Community Center- 1100 E Parlier Ave. Parlier, CA 93648	Cyndi
April	Thursday - 20th - 0700-1400	Health on Wheels - Fresno Fairgrounds	Kathi
April	Saturday - 22nd - 0900-1400	West Fresno Resource Ctr -Earth Day- "Spring into Health" 1802 E California	Kathi
April	Tuesday - 25th - 0900-1300	Family Education Center- Orosi- 40802 Road 128 Orosi, CA	Cyndi
April	Thursday - 27th- 0830-1400	Spirit of Woman (No Mobile/No Jim)	Kathi
April	Friday - 28th - 1000-1300	Reedley Community Ctr Resource Fair (No mobile/No Jim	Kathi
May	Tuesday - 2nd - 0900-1300	Madera Hope House 117 N. R Street Madera, CA 93637	Cyndi

APPENDIX C

10-7-2016		Fall	2016 Schedule	for Mobile Unit And Screenings	
Month	Date	Day	Time	Location	Faculty
September	15	Thursday	0900-1300	Spirit Of Woman (No UNIT)	Kathi
September	22	Thusrday	0900-1300	Sprit of Woman (No UNIT)	Kathi
September	27	Tuesday	0900-1300	West Fresno Food Drive	Cyndi
September (CNSA)	28	Weds	1000-1300	FSU Health and Wellness (No UNIT)	Kathi
September	29	Thursday	0900-1300	Poverello house	Kathi
October	4	Tuesday	1730-2100	Parlier J. H. School, 1200 E. Palrier Ave	Kathi
October	6	Thursday	0900-1300	Siprit of Woman	Kathi
October	11	Tuesday	1500-1830	Dinuba Heatlh and Wellness Fair	Cyndi
October	13	Thursday	0900-1300	Madera/ Hope House	Kathi
October	18	Tuesday	0900-1300	Madera/ Hope House	Cyndi
October	22	Saturday	NURS 141	Community Project /Candace clinical Grp	Kathi
October	25	Tuesday	0900-1300	West Fresno Food Drive	Cyndi
October	27	Thursday	0900-1200	Spirit of Woman	Kathi
October (CNSA)	29	Saturday	0900-1300	Migrant Enrollemnet fair Mendota	Kathi
November	1	Tuesday	17:30-2100	OSY Migrant McCabe Elem Mendota	Kathi
November	3	Thursday	0900-1300	Spirit of Woman	Kathi
November (CNSA)	5	Saturday	need to confirm	Enrollmenat Fair Migrant West Fresno	Kathi
November	8	Tuesday	5:30 -2100	Dinuba	Cyndi
November	10	Thursday	0900-1300	Poverello House	Kathi
November	15	Tuesday	0900-1300	Cutler Orosi/40802 RD 128, Orosi CA	Cyndi
November (CNSA)	17	Thursday	0700-1400	Fresno Flea Market	Kathi
November	29	Tuesday	0900-1300	Firebaugh, St. Joesph Church	Cyndi
December	1	Thursday	0900-1300	Spirit Of Woman	Kathi
December	6	Tuesday	Pending	Firebaugh	Cyndi
December (CNSA)	3	Saturday	Need to Confirm	Migrant Fair Reedly	Kathi
December (CNSA)	4	Sunday	0700-1400	Madera Swap Meet	Kathi

APPENDIX D

1-26-2016	Spring Schedule	Mobile Unit And Screenings/ Spirit of Health
Month	Day/Date/time	Location
January	Tuesday /26/ 9-1	Spirit Of Health
February	Tuesday /2 / 9-1	St. Joseph Church/1558 12th St,Firebaugh
February	Tuesday /9 / 9-1	Mental Health Systems Old Hacienda Fresno
		2550 W Clinton Ave, Fresno, CA 93705
February	Tuesday / 17 / 9-1	Cantua Creek/ 11996 Nebraska Ave
February	Tuesday/ 23/ 9-1	Madera Hope House/117 N.R.Street/Madera
March	Tuesday /1 / 9-1	
March	Tuesday /8 / 9-1	Mental Health Systems Old Hacienda Fresno
		2550 W Clinton Ave, Fresno, CA 93705
March	Tuesday/15/ 9-1	St. Joseph Church/1558 12th St, Firebaugh
March	Tuesday/ 29/ 9-1	Reserve for Pilar
April	Tuesday /5 / 9-1	Mental Health Systems Old Hacienda Fresno
		2550 W Clinton Ave, Fresno, CA 93705
April	Tuesday /12 / 9-1	Reserve for Pilar
April	Tuesday /19 / 9-1	Madera Hope House/117 N. R.Street/Madera
Saturday	4-23-2016	Fresno Swap Meet 0700-1400
Sunday	5-1-2016	Madera Swap Meet 0700-1400
Spirit of Health	Thursdays 0830-1400	At Spirit of Woman
Clinic	Execpt 3/31 No Clinic	327 W Belmont Ave, Fresno,