

Implementation of a Prenatal Education Program in Grand County, Colorado

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### **Abstract**

This research proposal aims to implement prenatal education classes in Grand County, CO. Research supports the benefits of prenatal and childbirth classes, and to date, one of Grand County's largest healthcare disparities is the lack of these resources for its pregnant population. The study will recruit 120 pregnant women over the course of 18 months to participate in a seven-class series of prenatal and childbirth care courses in order to evaluate several outcomes. The primary outcome being assessed by the study team is the educational benefit accrued by the pregnant woman in relation to prenatal care, the labor and delivery process, breastfeeding, and the first few weeks of newborn care. Secondary outcomes aim to assess the subjective amount of support perceived by the pregnant participant as well as the need for permanent implementation of additional educational programs and resources in Grand County.

**Table of Contents**

Introduction.....page 4  
Method.....page 7  
Personnel.....page 12  
Budget..... page 14  
Discussion.....page 15  
References..... page 16

## Introduction

This research proposal aims to implement childbirth education classes in Grand County, CO and assess the educational benefit and need for permanent implementation of such programs through the public health department.

Childbirth education classes provide information to help the expecting mother decide how she would like to give birth, what she should expect during labor, and how she should prepare for motherhood. Additionally, the expecting mother can meet with other pregnant women and share past experiences, beliefs, and ideas. Unfortunately, many rural communities do not have access to this type of education, which has proven to benefit women significantly.

Research supports the benefits of prenatal and childbirth education classes. Childbirth education aims to reduce fear of the unknown. In one prospective study of 2,206 pregnant women, fear level was assessed before labor and length of labor was recorded. This study found that reduced fear reduces length of labor (Adams, 2012). In another prospective study, pregnant women were randomized according to standard of care, which could indicate no educational classes, or additional education classes. These classes taught women about the physiology of pregnancy, recognizing Braxton-Hicks versus active labor contractions, and recognizing amniotic fluid leak. Those with additional education on the physiology of pregnancy were less likely to go to the hospital when not in active labor (Bonovich, 1990). A similar study randomized 1,193 women to receive either standard of care or nine hours of formal childbirth education. The women who received formal education were less likely to go to the hospital when not in active labor and less likely to receive epidural anesthesia (Maimburg et al., 2010). In a retrospective study, 1,540 women

were surveyed on what they did to prepare for childbirth and their outcomes were assessed. Of these women, 66% attended childbirth-education classes. The study found that the likelihood of breastfeeding increased by 75% in the group who attended classes (Lu et al., 2003).

### **Literature Review**

In one model of maternal child classes, Kaiser Permanente offers many classes covering a variety of childbirth and neonatal care topics. Kaiser offers breastfeeding support groups to help moms understand how their milk is produced, techniques for feeding, and how to assess efficacy of breastfeeding. This class is 3 hours and costs \$35 (*2013 Guide to Classes*). Kaiser's community childbirth program is a series of group meetings for a total of 9-12 hours. These classes are taught by nationally certified instructors, cover techniques for coping with labor, and offer education on how the body changes during pregnancy. These classes also focus on how the labor-and-delivery floor runs at the specific hospital where the woman is delivering, along with a tour of that hospital. This class costs \$75 and is completed 4 weeks prior to the patient's estimated due date (*2013 Guide to Classes*). Kaiser's Babies, Baths, and Booties class prepares mothers for the first few weeks of their babies' lives. This class covers basic care for an infant and addresses when moms should seek medical attention for their newborn. This 2.5 hour class costs \$35 and is taken during the last two months of pregnancy (*2013 Guide to Classes*). Lastly, Kaiser offers a CPR and Safety for Parents class. This class is open to anyone who will be caring for an infant. This 3.5 hour class is \$35 and should be taken during the last 2 months of pregnancy (*2013 Guide to Classes*). Many hospitals provide services similar to

Kaiser Permanente's child maternal education. However, this comprehensive education is not available in all areas of Colorado.

According to the Colorado Department of Local Affairs, State Demography Office, Grand County had an estimated population of 14,138 in the 2012 census ("Quick Facts," 2012). In this county, 89.4% of the population is Caucasian and 7.6% are Hispanic ("Quick Facts," 2012). Average per capita income is \$30,519 and average household income is \$64,281 ("Quick Facts," 2012). Annual births in Grand County were estimated at 138 in 2009, 106 in 2010, and 111 in 2012; there were an average of 118 births per year ("Grand County," 2012). According to Gail Van Bockern, R.N. with the Grand County Public Health Department, child maternal classes are one of the county's biggest needs. Currently, there are no formal prenatal classes available in Grand County. The only established services the county offers are by request and are for breastfeeding and care of the newborn. There are no formal educational offerings for pregnancy, labor and delivery, or breastfeeding support groups (G. Van Bockern, personal communication, October 15, 2013).

This research project will be important to rural communities looking to implement programs similar to this in the future. If this project demonstrates that mothers are significantly more educated after taking the series of formal education classes, this trial will begin to establish evidence that such programs would benefit other rural Colorado communities.

## **Method**

### **Participants**

Participants will include eighty pregnant women residing in Grand County, Colorado, who are in need of education and resources related to pregnancy, prenatal care, the process of labor and delivery, preparation for childbirth, care of the newborn, infant CPR and safety topics, and breastfeeding. Participants will be referred to the prenatal education classes via their primary care provider. Inclusion criteria include pregnant women who initiate their first prenatal visit in Grand County. Prisoners and women who present for care past their first trimester will be excluded as participants for research purposes. Prisoners will be excluded in accordance with Colorado Institutional Review Board standards as they are labeled a vulnerable population due to coercion.

### **Research Design**

The proposed research design is aimed at collecting qualitative, descriptive data over the course of 18 months. The research design will use a social/behavioral model in an outpatient setting. After reviewing multiple labor and delivery classes and programs, the Granby prenatal care and labor and delivery courses will be modeled after Kaiser Permanente's program with some significant changes. Most prenatal care and labor and delivery courses were offered as individual classes in the Kaiser model and the patient was allowed to pick the classes in which they decided to enroll, ranging from labor and delivery to newborn care courses. Granby's maternal child health program will not offer multiple classes to pick from; instead, it will be a comprehensive course addressing most major components of prenatal care, labor and delivery, and the first weeks at home. Also,

Granby's courses will be started earlier in pregnancy to ensure support in the first and second trimesters of pregnancy and offer more resources for the mother on what to expect during her prenatal care. By having a first- and second-trimester course, the investigators will be able to offer support and answer questions for the mother at an earlier stage in pregnancy. Another difference in the course curriculum will be the amount of time spent discussing labor and delivery. When compared with Kaiser's 9-12 hour course, the course in Granby will be 6 hours since the patient will also be participating in other courses besides just labor and delivery. Granby's courses will also require CPR instruction along with a required course on newborn care addressing any problems that the mother could experience in the first couple weeks following the birth of the newborn.

The seven-class prenatal series will be led by a Physician Assistant certified as a lactation consultant. The study will employ a research assistant for administrative duties and data collection. The study team will have all participants sign an informed consent. Additionally, the study team will conduct a short entrance interview and questionnaire at the beginning of the seven-class series (see attachment A). A short exit interview and questionnaire will be administered 2 weeks post-delivery. Degree of education gained pertaining to maternal physiologic changes, prenatal care, the process of labor and delivery, and newborn care will be assessed as the primary outcomes. The secondary outcomes being assessed are 1) maternal evaluation of the support from the instructor and group members in addressing concerns about pregnancy, labor and delivery, and newborn care; 2) subjective interpretation of preparedness for the childbirth process; and 3) participant assessment of need for this type of program to be permanently instituted in Grand County, Colorado.



## Procedure

The seven-class series will be held on Tuesday and Wednesday nights at the Granby Town Hall from 6:30-8:30. Classes will be separated according to gestational age. Classes will include the following topics:

Class	Gestational Age
Class 1—Healthy Beginnings	8-12 weeks
Class 2—Welcome to the Second Trimester	16-20 weeks
Class 3—Getting Ready for Childbirth Part 1	27-29 weeks
Class 4—Getting Ready for Childbirth Part 2	30-32 weeks
Class 5—CPR and Safety	32-34 weeks
Class 6—Infants, Illness, and The Icky	34-36 weeks
Class 7—Breastfeeding	36-38 weeks

### Class 1—Healthy Beginnings

This introduction course will be most beneficial at 8-12 weeks of pregnancy. This course will cover the following learning objectives:

- Basic physiologic principles and common symptoms of pregnancy
- Prenatal development and timeline of prenatal care
- Danger signs in pregnancy
- Explanation of prenatal labs
- Medications and products to avoid
- Maintaining a healthy diet/foods to avoid/weight gain

- Group discussion, support group, and Q&A

### **Class 2—Welcome to the Second Trimester**

This second trimester course is aimed at reinforcing the topics discussed in the first class and focusing on establishing peer and instructor support for the upcoming weeks of pregnancy. A large amount of time will be spent on group discussion, sharing, and concerns. This course will focus on the following topics:

- Pregnancy and how the mother's life is affected
- Involvement of the mother's family in pregnancy and birth

### **Class 3—Getting Ready for Childbirth Part 1**

This course is an introduction to labor and delivery. Partners are encouraged to come. This course will cover the following topics:

- Understanding the labor process
- How to tell what is labor
- Premature labor and how to prevent it
- Understanding coping and breathing techniques
- Good communication skills and birth plans
- Support options (doulas, family, partners)

### **Class 4—Getting Ready for Childbirth Part 2**

This course is the conclusion for the labor-and-delivery process. This course will include the following topics:

- Understanding epidurals and other medications
- Vaginal delivery
- Cesarean delivery

- Instructor will facilitate arrangement of a scheduled tour of the facility in which the participant is delivering (actual visit will be separate from 7-week series)
- Participant will be encouraged to inquire about hospital policy and procedure as compared to their birth plan
- Participant will begin writing birth plan

### **Class 5—CPR and Safety**

This course will be aimed at pregnant women establishing competency and confidence in performing newborn and infant CPR. This course will include the following topics:

- The choking child
- Adequate CPR technique
- Childproofing the home
- Basic information on other accidents, ingestions, and car safety

### **Class 6—Infants, Illness, and The Icky**

This course helps prepare pregnant women for the first weeks at home. This course will include the following topics:

- Newborn procedures in the hospital (vaccinations, hearing screen, circumcision)
- Cord and circumcision care
- Taking temperatures
- Recognizing signs of illness
- How to calm a fussy baby
- Bathing and changing diapers

### **Class 7—Breastfeeding**

This course will utilize the care team's PA lactation consultant. This course will include the following topics:

- How milk is made
- Benefits of breastfeeding
- Feeding techniques
- Milk storage
- How to avoid common problems associated with breastfeeding

### **Personnel**

In order to implement this program, a Registered Nurse (RN) will work approximately 12 hours per week for one year. The goal is that this person would already be working within the community and would add on the twelve hours to their current work schedule. The RN will teach the educational classes two evenings per week for a total of four hours per week. The remaining time will be filled with preparation for and administrative duties related to the seven-class series. The RN will also be available to assist the enrolled participants with questions/needs outside of class. Prior to starting this project, the RN will undergo training and certification through the International Childbirth Education Association in order to receive certification as a childbirth instructor.

Additionally, the RN will gain certification as a lactation consultant through Prepared Childbirth Educators Inc. These classes will ensure that the RN is fully equipped to instruct and care for the pregnant participants.

To assist the RN in this program, a research assistant will be hired to work ten hours per week. The assistant will track the participants throughout their pregnancies and send

out materials and reminders related to their scheduled classes. This person will maintain records throughout the study as well as support the RN with classes as needed. The research assistant will continue working on the project for an additional six months after the initial year of classes to compile data. A statistician will also be hired to complete data analysis.

### Budget

#### Year 1

- Physician Assistant salary for 12 hours/week \$17,280.00

(Avg. hourly PA salary in Grand County: \$30.00/hr)\*

- International Childbirth Education Association (ICEA) - Certification: \$1,300.00
- Lactation Consultant Certification – Prepared Childbirth Educators: \$300.00
- Research Assistant salary for 10 hours/week \$4,800.00

(Avg. hourly research assistant wages: \$10.00/hr)\*

- \$25 compensation per participant x 120 participants: \$3,000.00

Year 1 Total: \$26,680.00

#### Year 2 (6 months post-recruitment)

- Research Assistant at \$10 per hour x 10 hours/week: \$2,400.00
- Statistician hired for 80 hours to perform data analysis: \$2,800.00

(Avg. hourly salary: \$35.00/hr)\*

Year 2 Total \$5,200.00

**Total Budgeted Amount: \$31,880.00**

*\* Average hourly wages from Bureau of Labor Statistics*

## **Discussion**

If the final evaluation of all data supports a significant increase in the degree of education pertaining to prenatal care, childbirth, and newborn topics; if there is an increased perceived amount of support among participants; if participants feel that they were more prepared for the childbirth experience; or there is an evident showing need for a prenatal program to be established, the study team will initiate a grant proposal for a the full-time implementation of a prenatal program in Grand County, Colorado. In the process of compiling this proposal, it was also noted that Grand County might benefit from a similar series of classes, post-partum, for continued newborn care and breastfeeding support. This will guide the direction of the study team's future research.

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**Attachment A**

## Prenatal Education Questionnaire

Please answer the following questions on a scale from 1 to 4, where:

1= I have never heard of this topic before

2= I have heard of this topic before, but I do not know much about it

3= I have a moderate understanding of this topic

4= I feel confident with my level of knowledge regarding this topic

How would you assess your current understanding of:

1) Physical changes in your body due to pregnancy	1	2	3	4
2) Signs of danger to your pregnancy	1	2	3	4
3) How your baby develops throughout your pregnancy	1	2	3	4
4) Medications to avoid in pregnancy	1	2	3	4
5) Foods to avoid in pregnancy	1	2	3	4
6) Premature labor and its causes	1	2	3	4
7) The different stages of labor	1	2	3	4
8) Techniques and medications for coping with labor pain	1	2	3	4
9) The process of a vaginal delivery	1	2	3	4
10) The process of a Cesarean delivery	1	2	3	4
11) How to manage a newborn who is choking	1	2	3	4
12) How to recognize if and when an infant needs CPR	1	2	3	4
13) How to properly administer CPR to an infant	1	2	3	4
14) How to recognize signs of illness in a newborn	1	2	3	4
15) How to take a newborn temperature	1	2	3	4
16) Benefits of breastfeeding	1	2	3	4
17) Common problems experienced with breastfeeding	1	2	3	4