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Managing Complicated Obstetrical Patients in the Home

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Objectives

1. Discuss cost of antenatal hospital care and the impact of poor obstetrical outcomes.
2. Discuss desirable clinical qualifications of the care management provider.
3. Describe services available, as well as benefits, cost savings, and patient satisfaction of focused management of complicated obstetrical patient in the home.

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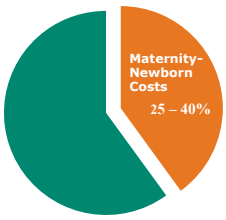
Estimated Health Expenditures

Typical health plan commercial expenditures



Percentages Reflect a Non-Medicaid Environment Source: Washington Business Group on Health

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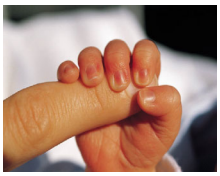
Impact of Poor Birth Outcomes

- Employer/Insurer
  - Maternal care costs
  - Loss of productivity
  - Cost of newborn care
- **Community/Society**
  - Continued care costs
  - Disabilities and care requirements
- **Family**
  - Quality of life issues
  - Financial hardship



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Did You Know. . .

- Savings from reduced hospital stays can more than offset the extra cost of OB homecare.
- For **every dollar** spent on home care, **3-5 dollars are typically saved, depending** on the risk status and demographics of the population.

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Obstetrical Home Care

OB Home Care

SERVICES for

- 17P Home Administration
- Nausea and Vomiting of Pregnancy
- Preeclampsia
- Diabetes in Pregnancy

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Company Qualifications

- National provider
- Maternal/child health focus
- Level of experience
- Disease State Management with Acuity Based Protocols

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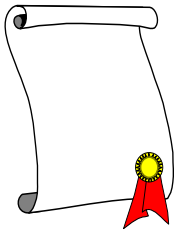
Clinical Qualifications



- Experienced Obstetrical RNs
- Obstetrically focused Pharmacists
- Professional Accreditation and Licensure
- Ongoing clinician competency assessment

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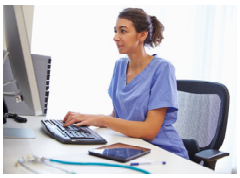
How is Service Rendered?

- Local management center
- Area Service Center
- After Hours Center
- Other Resources
  - Case Managers
  - Dietitians
    - NVP
    - Diabetes



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Recurrent Preterm Birth. . .

Can Anything Be Done?

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Perception Problem

A 2009 study was conducted to estimate women's understanding of the definition of full term birth:

- 24% of women surveyed considered a baby 34-36 weeks' of gestation to be full term
- 51.7% believe it is safe to deliver a baby at 34-36 weeks
- ACOG recommends that elective deliveries not occur before 39 weeks

Goldenberg RL, et al. 2009 ACOG. Ob-Gyns Redefine Meaning of "Term Pregnancy. October 22, 2013

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Term Pregnancy

Late Preterm	Between 34 weeks 0 days and 36 weeks 6 days (2006)
Early Term	Between 37 weeks 0 days and 38 weeks 6 days (2014)
Full Term	**Between 39 weeks 0 days and 40 weeks 6 days**
Late Term	Between 41 weeks 0 days and 41 weeks 6 days
Post term	Between 42 weeks 0 days and beyond

ACOG. Ob-Gyns Redefine Meaning of "Term Pregnancy. October 22, 2013.

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Did You Know. . .

- The average first year medical costs, are about 10 times greater for preterm (**$32,325**) than for term infants (**$3,325**)
- While health plans pay the majority of total allowed costs, out of pocket expenses are substantial and significantly higher for premature newborns compared with uncomplicated newborns

Institute of Medicine. 2007. Preterm Birth: Causes, Consequences, and Prevention. National Academy Press, Washington, D.C. Published and unpublished analyses. Retrieved from www.marchofdimes.com/peristats

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Adverse Neonatal Outcomes

- Respiratory distress
- Temperature instability
- Jaundice
- Feeding difficulties
- Apnea
- Patent ductus ateriosus (PDA)
- Chronic lung disease (BPD)
- Hypoglycemia
- Intraventricular hemorrhage (IVH)
- Necrotizing entercolitis (NEC)
- Retinopathy of prematurity (ROP)
- Anemia
- Infections
- Developmental delays
- Behavioral issues

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The babies born a little early will be fine. . .

Won't they?

- "Infants born 34 +0/7 to 36 +6/7 weeks gestation, referred to as "late preterm", have a higher incidence of morbidity and mortality when compared with term infants (≥ 37 weeks).
  - Based on March of Dimes information (Late Preterm Birth: Every Week Matters--Medical Perspectives on Prematurity)
- "Late preterm infants incur greater costs and longer lengths of stay in NICU and experience higher rates of re-hospitalization after neonatal discharge."

ACOG Committee Opinion #404: Late-Preterm Infants. April 2008

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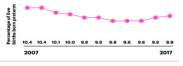
2018 MOD Report Card

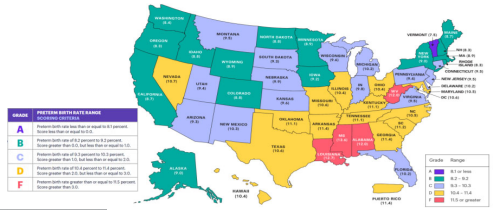
UNITED STATES

GRADE **C**

PREMATURE BIRTH RATE **9.9%**



PREMATURE BIRTH RATES AND GRADES BY STATE



GRADE	PRETERM BIRTH RATE RANGE SCORING CRITERIA
A	Preterm birth rate less than or equal to 8.1 percent. Score less than or equal to 0.5.
B	Preterm birth rate of 8.2 percent to 9.2 percent. Score greater than 0.5, but less than or equal to 1.0.
C	Preterm birth rate of 9.3 percent to 10.3 percent. Score greater than 1.0, but less than or equal to 2.0.
D	Preterm birth rate of 10.4 percent to 11.4 percent. Score greater than 2.0, but less than or equal to 3.0.
F	Preterm birth rate greater than or equal to 11.5 percent. Score greater than 3.0.

Grade	Range
A	8.1 or less
B	8.2 – 9.2
C	9.3 – 10.3
D	10.4 – 11.4
F	11.5 or greater

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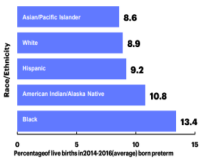
2018 PREMATURE BIRTH REPORT CARD
RACE & ETHNICITY IN THE U.S.

MARCH OF DIMES

Aggregate 2014-2016 preterm birth rates are shown for each of the five bridged racial and ethnic groups. The racial/ethnic group with the highest rate is compared to the combined rate for all other racial/ethnic groups.



In United States, the preterm birth rate among black women is 49% higher than the rate among all other women.

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Did You Know…

- The risk for recurrence of preterm delivery ranges between 21% and 45.1%.

National Vital Statistics Reports, 2015

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17HPC

- 17 Alpha-Hydroxyprogesterone Caproate (17P)
  - Singleton gestation
  - History of at least one preterm delivery
  - Weekly injections starting at 16 to 20 weeks
- 34% reduction in the incidence of recurrent spontaneous preterm delivery

Meis PJ, et al. Prevention of recurrent preterm delivery by 17 alpha-hydroxyprogesterone caproate. N Engl J Med. 2003;348:2379-85.

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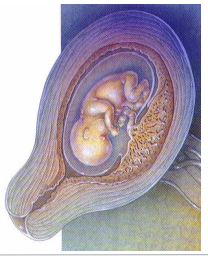
Pharmacology

- Action
  - Relaxation of myometrial smooth muscle
  - Blocking action of oxytocin
  - Inhibition of the formation of gap junctions



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Therapy Candidates

Previous spontaneous birth at less than 37 weeks GA

- Optimal start time for weekly 17P injections is between 16 – 20 completed weeks gestation continuing through 36 weeks
- Studies are showing a later start date still has benefit

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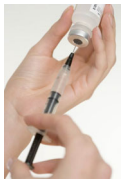
Administration

Weekly intramuscular "Z track" injections OR
Weekly SQ Auto injector in the back of the arm
- Usually begin in the 16th to 20th week of pregnancy
- Should continue through the 36th completed week of pregnancy

- Progesterone stays in the body for about one week
  - Injections is needed every seven days
    - Suggested range of days in between injections is 5 to 9 days
- Injections may be done in the doctor's office or during a home healthcare visit



Z track technique: for highly irritating, viscous solutions. Reduces leaking, pain and irritation to prevent seepage of medication. Systematic Review of Literature; Wynnaden, D., Landborough, I. & Chapman, R., 2005

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Benefits of Home Administration of 17HPC

Care
- Drug administered via Z track by an experienced OB nurse
- Patient assessed, evaluated and educated on signs and symptoms of PTL
- 24/7 OB nurse call line reduces stress for a woman who has already experienced the fear and concern of a previous preterm birth
- Continued holistic and individualized education to high risk patient throughout therapy

Compliance
- Intensive follow-up management resulting in an average 98% injection compliance rate
- Ability to "go where the patient is" whether at home at work or at play/vacation

Convenience
- Patient doesn't need miss work or other activities to schedule several hours to travel to and wait in the medical office for a weekly injection.

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Did You Know…

- Each week of gestation up to 39 weeks is important for a fetus to fully develop before delivery and have a healthy start
- **Every Week Matters!**

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Nausea and Vomiting of Pregnancy

- Nausea and vomiting occur in **50 to 80** percent of all pregnancies.
- Hospitalizations due to NVP cost an average of $1,400 a day and last an average of three days.

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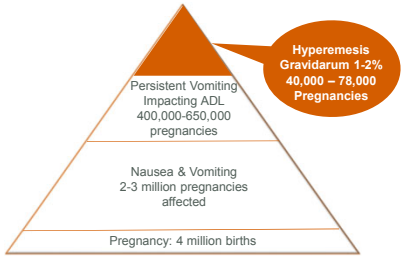
Incidence



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Goals of Intervention

- **Optimal pregnancy outcome**
  - Ideal maternal weight gain
  - Ideal fetal weight at delivery
- **Reduce cost of care**
  - Decreased hospitalizations
- **Regain quality of life**
  - Able to participate fully in life (home, children, work, school)

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SQ Antiemetic Pump Therapy

- Individually dosed antiemetic therapy
  - Metoclopramide (Reglan)
  - Ondansetron (Zofran)

Limited IV hydration to stabilize fluid balance for optimal efficacy of antiemetic, if needed

Full holistic support of experienced OB nurses, with dosing guidance from OB pharmacists based upon individualized parameters, access to dietition

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How Sick is Sick?
Candidates for Intervention

- Persistent, intractable nausea/vomiting
- Unable to tolerate/keep down PO intake
- Dehydration/Ketonuria
- Weight loss
- Failed primary agents (PO, PR)
- Can't retain medicatons
- Previous/impending hospitalizations
- ***Effect on ADLs***

Just ask the patient!
…as Dr Phil would say…"How's that workin' for ya?"

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Benefits of In-Home Treatment

- Ongoing assessment and early intervention for symptoms
- Eliminate peaks/troughs of oral therapy
- Reduce IV intervention strategies
- Personal dietitian consultation
- 24-hour Experienced OB nurse availability
- More mobile patient
- Discreet modality
- Productivity and ability to perform ADLs
- Cost effective - 75% less costly than hospital

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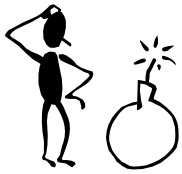
Hypertensive Disorders in Pregnancy

- Hypertension is the most common medical complication in pregnancy
- Occurs in 6% - 8% of all U.S. pregnancies
  - 70% are first time pregnancies
  - Responsible for 17.6% of maternal deaths in the US
- Source of severe complications
  - Maternal
  - Fetal



www.mbi.nih.gov, 2014
Deadbeat et al, 2014

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Classifications

- Preeclampsia – Eclampsia
  - This is the killer
- Chronic Hypertension
  - 13-40% of these women will develop preeclampsia
- Chronic Hypertension with Superimposed Preeclampsia
  - Associated with considerable maternal/fetal morbidity and mortality
- Gestational Hypertension
  - 50% diagnosed before 30 weeks will progress to preeclampsia

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Pathophysiology
Preeclampsia is NOT just about high blood pressure…

It is about diffuse spasms of the entire vascular system that restrict blood flow and damages vessels

Normal blood vessel | Vasoconstriction | Vasospasm

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Preeclampsia Services

ACOG and NIH are supportive of outpatient management if there is maternal/fetal surveillance available, giving physicians the ability to know when the patient is becoming unstable.

Both services: Nurse availability 24/7. Initial intensive in home assessment and education by OB nurse including fetal movement instruction, and importance of compliance.

1, "At Risk" for Preeclampsia –for those *AT RISK* of developing preeclampsia
- BP and preeclampsia specific question set 1X day and prn via biometric device with immediate review
- Daily urine for protein
- Weekly patient assessment/education/reinforcement

2. Preeclampsia-for those *WITH* preeclampsia
- BP and preeclampsia specific question set 3X day and prn via biometric device with immediate review
- Daily patient assessment/education/reinforcement
- Postpartum daily assessment up to 14 days

3, Preeclampsia Postpartum -for preeclampsia or risk identified *AT DELIVERY*
- BP and preeclampsia specific question set daily and prn via biometric device with immediate review

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You need more than a blood pressure cuff …

- Optum's wireless telemetry device alerts patient that it is time to check her BP and other parameters and walks her through the various tasks
- The data is sent virtually real time to an OB nurse
- The nurse reviews the objective/subjective data daily and calls the patient to review her status. Calls are weekly for "At Risk" and up to daily for Preeclampsia patients
- Education and support is on-going; nurse availability 24/7

English or Spanish (other languages thru AT&T)

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What questions are asked?

- ***Are you experiencing any epigastric pain?***
  YES ..... NO
- ***Are you experiencing a headache?***
  YES ..... NO
- ***Do you have any more swelling in your face or hands than usual?***
  YES ..... NO
- ***Are you having any blurred vision today?***
  YES ..... NO
- ***Have you noticed a decrease in your baby's movement today?***
- ***Do you have any protein in your urine today?***
  a. Press [Continue] to make a selection
  b. Use the UP/DOWN arrows to select the correct answer (YES; NO; or NON-APPLICABLE)

NOTE: If YES is selected, the next screen opens to additional related questions.

- ***What is the urine value?*** *(Press [Continue])*
  i. Negative
  ii. Trace
  iii. 1+
  iv. 2+
  v. 3+
  vi. 4+

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Home Management Goals

- Home management does not prolong pregnancy or "treat" preeclampsia. It is simply a more comfortable, less stressful cost effective environment to wait as the **physician** watches for instability or exacerbation.
- Intensive nursing contact and patient education about warning signs and symptoms and increased vigilance can decrease the likelihood of life threatening exacerbations associated with missed or late diagnosis.
- The addition of an appropriate homecare program can help the patient enjoy the comfort of home while receiving the surveillance of the hospital environment.

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Diabetes - The Balancing Act

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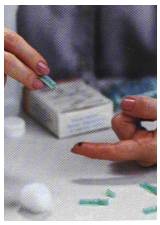
Diabetes

Pregestational Diabetes

- Type 1 - Immune mediated
  - *Requires* insulin
- Type 2 - Insulin resistant
  - May be managed by diet and exercise, oral agents or insulin

Gestational Diabetes

- First recognition during pregnancy
- A form of insulin resistance (type 2)
- May be managed by:
  - Diet
  - Insulin



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Health Plan Challenges: Costs

- Pregnant Diabetics, if hospitalized:
  - ALOS = 2.7days[1]
  - Cost/stay = $9,522 ($3,527/day avg)[1]
- One NICU day ≈ $2,500
- How can we minimize these costs?
  - Early risk identification
  - Clinical expertise including timely, appropriate interventions
  - Integrated continuum of care solution
  - Effective management of GDM

[1]HCUP-NIS (Healthcare Costs Utilization Project, Nationwide Inpatient Sample) 2006; N = 88,174 discharges

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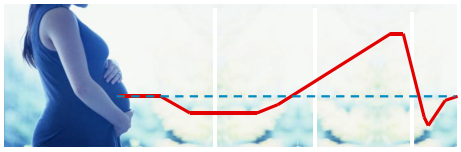
Why Actively Manage Diabetes in Pregnancy?

Insulin Requirements
of Pregnant and Non-Pregnant Women



Source: Maternity and Gynecologic Care: The Nurse and the Family: p701, Bobak, et al. 1989

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Hyperglycemia – What does it do?

- Maternal Effects
  - Pancreatic Stress
  - Placental Stress
- Fetal Effects
  - Increased calories = abnormal fat deposit
  - Increased Insulin production
  - Acts as Growth hormone = bigger everything
  - Fetal pancreatic stress
  - Possible future metabolism effects

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Varied Goals in Diabetes Care

- Non pregnant Diabetics need ***Permanent healthy lifestyle changes*** to prevent complications of prolonged hyperglycemia
- Pregnant Diabetics
  - ***Control during pregnancy to protect fetus***

Non pregnant women can take more time to learn

Pregnant women need to get it in control **NOW**. Every day matters!

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Management Challenges
Patient Issues

- Intense management is difficult to implement:
  - Patient Education
  - Nutrition and meal planning
  - Exercise
  - Insulin Therapy (if required)
- The vast majority of physicians do not have the resource team available to implement intensive care programs:
  - Daily assessments of patient reported blood glucose values
  - Frequent telephone contact with patient
  - More frequent office visits
  - Access to self-management training and follow-up

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Diabetes in Pregnancy Services

INSULIN REQUIRING

- Management, oversight for Immediate insulin, meal planning, and activity adjustments to maintain normal glycemia, frequent outbound contact
- BG testing and reporting to RN/ CDE
- All medication, equipment and supplies delivered to the home for duration of service
- Outcome reports

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Pregnant Diabetics Need Extra Help!

- Diabetes is complicated
- Diabetes in Pregnancy is DIFFERENT
- The pregnant diabetic has NO time cushion to "get it right"
- The pregnant woman needs meal/activity/medication adjustment about every 3 days.
- Even a "little bit sweet" causes problems and expense

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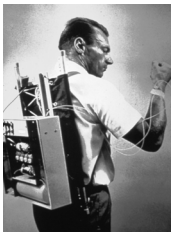
INSULIN PUMP



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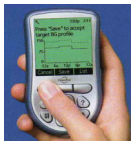
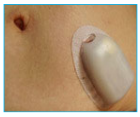


OmniPod Insulin Management System

To This!



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OB Homecare Outcomes

Nausea and Vomiting of Pregnancy

52.3 % reduction in antepartum hospital admissions
91.2 % reduction in ER visits
61.5% improvement in PUQE score

Diabetes in Pregnancy

Compliance rate for blood glucose testing totaled **93.2% for insulin patients** and **97.3% for non-insulin patients** who converted to insulin therapy

INSULIN

245.8% improvement in number of patients maintaining blood glucose levels within range (insulin dependent)

17HPC/Makena® Home Administration[4]

98.1% injection compliance
59.4% reduction in preterm delivery (Meis reduction was 34%)
98% patient satisfaction

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Benefits of System of Care Management

- Appropriate Clinical Resources
- Coordination of Care
- Full spectrum of resource availability
- Reporting
- Cost Savings
- Patient Satisfaction

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Thank you

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