

# POSTPARTAL DIABETES MELLITUS

(To be used in conjunction with customary postpartal plans of care.)

## CLIENT ASSESSMENT DATA BASE

(Refer to CP: Diabetes Mellitus: Prepregnancy/Gestational; and CP: Intrapartal Diabetes Mellitus.)

### Activity/Rest

Fatigue, especially when labor was long or difficult (increases glucose needs)

### Circulation

May have elevated BP, edema (signs of PIH that developed during prenatal, intrapartal, or postpartal period)  
History of vascular changes associated with diabetes that impair circulation/kidney functioning; venous thrombosis

### Elimination

Polyuria

### Food/Fluid

Polydipsia, polyphagia  
Nausea/vomiting  
Ketonuria, elevated serum glucose  
May report episodes of hypoglycemia, glycosuria

### Safety

Healing of episiotomy or cesarean incision may be delayed.  
May report visual disturbances.

### Sexuality

Uterus may be relaxed/boggy, and lochia may be heavy with clots present.  
Current pregnancy may have involved uterine overdistension (macrosomia or hydramnios).  
Labor may have been prolonged/augmented or induced.  
Preterm, large-for-gestational age, or low-birth-weight infant.

### Teaching/Learning

Change in stability of diabetes, adjustment of insulin therapy.  
Type of infant feeding planned affects caloric needs and insulin requirements.

## DIAGNOSTIC STUDIES

**Fasting (Daily) or Serum Glucose:** Assesses control (increased risk of hypoglycemia).

**Hb/Hct:** Baseline studies.

**Glycosylated Hemoglobin (HbA<sub>1c</sub>):** May be elevated (greater than 8.5%), indicating inadequate control of serum glucose levels.

**Urinalysis:** May show glucose, ketones, or protein.

## NURSING PRIORITIES

1. Maintain normoglycemia.
2. Prevent or minimize complications.

3. Promote parent-infant bonding.
4. Provide information concerning postpartal changes and diabetic management.

## DISCHARGE CRITERIA

### Gestational Diabetes

1. Regains euglycemia without need of medication
2. Understands nature of condition and prognosis for future

### Diabetes

Because this is a life-long condition, client's care will be transferred to primary care provider at completion of postpartum period.

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#### NURSING DIAGNOSIS:

#### Risk Factors May Include:

#### Possibly Evidenced By:

#### DESIRED OUTCOMES/EVALUATION CRITERIA—CLIENT WILL:

#### NUTRITION: altered, risk for less than body requirements

Inability to ingest/utilize nutrients appropriately, increased metabolic demands (recuperation, lactation)

[Not applicable; presence of signs/symptoms establishes an *actual* diagnosis]

Maintain serum glucose levels within individually determined parameters, free of hypoglycemia/ hyperglycemia.

Verbalize understanding of, and participate in, self-monitoring and individual treatment regimen.

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## ACTIONS/INTERVENTIONS

### Independent

Review onset of diabetes (prepregnancy versus gestational) and type of infant feeding planned.

Assess for hypoglycemic or hyperglycemic reactions. Note changes in mentation and behavior, visual disturbances, nausea or vomiting, tachycardia, slurred speech, or Kussmaul's respirations.

Monitor urine for glucose and ketones.

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## RATIONALE

The client with gestational diabetes mellitus (GDM) usually requires no further insulin after delivery; the client with prepregnancy onset must be re-regulated based on fasting blood sugar and 1-hr postprandial serum glucose levels. In addition, breastfeeding has an antidiabetogenic effect because carbohydrates are used in milk production.

Because the half-life of human placental lactogen is 20–30 min, most of this insulin antagonist has disappeared within 2–3 hr postpartum, rendering the client susceptible to hypoglycemia, if insulin dosages are not accurately recalculated.

The presence of ketones indicates inadequate carbohydrate intake and fat breakdown and may necessitate modifying diet or discontinuing breastfeeding.

Advise GDM client to avoid obesity and to lose weight during postpartal period if she is not lactating.

## Collaborative

Coordinate multi-specialty care conference as appropriate.

Monitor serum glucose levels by fingerstick per protocol and as indicated.

Discontinue insulin infusion after vaginal delivery, as indicated; continue infusion of glucose until oral feedings are started.

Continue insulin infusion after cesarean birth until client has resumed eating.

Administer insulin subcutaneously or monitor self-administration of insulin for client with prepregnancy diabetes.

Adjust diet to increase calories by 500–800 kcal/day above pregravid requirements if client is breastfeeding.

Reevaluate serum glucose levels at 4- to 6-wk checkup or when breastfeeding stops. Institute new dietary insulin control if fasting plasma glucose is greater than 120–140 mg/dl, or if 2-hr oral glucose tolerance test (GTT) is 140–200 mg/dl and at least one other value is greater than 200 mg/dl.

Helps reduce risk of developing insulin-dependent diabetes (type 1), although 70% of individuals who develop GDM develop type 2 diabetes later in life, often within 10 yr.

Provides opportunity to determine individual postpartal diabetic control based on client's specific needs (e.g., diabetic classification, lactation).

Following removal of the placenta with its anti-insulin hormones, insulin requirements decrease in the first 48–96 hr postpartum. Such a change results in a glucose-insulin imbalance. Frequent assessment (e.g., every 2 hr) is continued until serum glucose levels stabilize and carbohydrate hemostasis occurs. Whereas hypoglycemia is common during the first 24 hr after delivery, it may compromise wound healing, and poor control is associated with increased morbidity and infection.

Insulin requirements quickly decline after delivery of the placenta. Glucose infusion helps prevent hypoglycemic response. Note: IV infusion of 5% dextrose with insulin at 1 unit/hr via pump may be used to maintain normoglycemic control in early postpartal period.

Surgical procedure/stress may increase insulin needs.

During first 1 or 2 days postpartum, insulin dosage is usually equal to one-half to two-thirds of prepregnancy levels with the resumption of a "regular" diet.

Inadequate caloric intake with resulting hypoglycemia negatively affects milk supply and let-down reflex.

Although temporary remission of diabetes may occur, necessitating lowering insulin needs, return to prepregnancy doses is usually required to 6 wk postpartum, or when weaning occurs.

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### NURSING DIAGNOSIS:

#### Risk Factors May Include:

#### Possibly Evidenced By:

#### DESIRED OUTCOMES/EVALUATION CRITERIA—CLIENT WILL:

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### INJURY, risk for

Biochemical or regulatory complications (e.g., uterine atony/hemorrhage, hypertension [PIH], hyperglycemia)

[Not applicable; presence of signs/symptoms establishes an *actual* diagnosis]

Display vital signs, reflex response, lochial discharge, and WBC count WNL, with uterus well contracted.

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## **ACTIONS/INTERVENTIONS**

## **RATIONALE**

### **Independent**

Monitor contractility and location of uterus.

Uterine atony and hemorrhage may occur, owing to overdistension associated with a large (macrosomic) infant, hydramnios, or oxytocin stimulation.

Gently massage uterus, as indicated.

Increases uterine tone and myometrial contractility, reducing risk of hemorrhage.

Assess amount and type of lochial flow with each check of the fundus. (Refer to CP: Postpartal Hemorrhage; ND: Fluid Volume, risk for deficit.)

Increased or heavy flow may indicate developing complications.

Assess bladder fullness; encourage voiding within 6–8 hr following delivery. Monitor intake and output.

Polyuria (increased urine output) associated with diabetes occurs as a means of excreting excess glucose and retained fluids. A full bladder may interfere with uterine involution.

Monitor BP and pulse. Note location and extent of edema and presence of proteinuria, visual disturbances, hyperreflexia, or RUQ/epigastric pain. Institute seizure precautions. (Refer to CP: Pregnancy-Induced Hypertension.)

With hemorrhage, BP decreases and pulse increases. Elevated BP, proteinuria, and extensive edema may indicate PIH or potential eclampsia. Danger of eclampsia exists for up to 72 hr postpartum, but can actually occur for up to 1 wk postpartum, depending on severity of hypertension, fluid retention, and organ involvement.

Monitor temperature and WBC count. Assess lochia and episiotomy or abdominal incision. Note progressive rate of uterine involution.

Infection is indicated by elevated temperature and WBC count; redness, erythema, or exudate at site of episiotomy or abdominal incision; and foul-smelling lochia. Infection may occur in diabetic client owing to poor healing associated with vascular involvement and hyperglycemia. (Refer to CP: Puerperal Infection.)

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### **NURSING DIAGNOSIS:**

**KNOWLEDGE deficit [LEARNING NEED], regarding condition, prognosis, and treatment needs**

### **May Be Related To:**

Lack of exposure/recall, misinterpretation, unfamiliarity with resources

### **Possibly Evidenced By:**

Verbalization of concerns/misconceptions, inadequate performance of procedures, development of preventable complications

### **DESIRED OUTCOMES/EVALUATION CRITERIA—CLIENT/COUPLE WILL:**

Verbalize understanding of physiological changes, individual needs, possible outcomes.

Perform necessary activities/procedures correctly and explain reasons for actions.

Select family planning method prior to discharge.

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## **ACTIONS/INTERVENTIONS**

## **RATIONALE**

### **Independent**

Discuss dietary needs based on individual weight gain and choice of infant feeding.

Calorie needs will be determined by desired weight goal and whether client is breastfeeding. (During lactation, glucose is used as energy in milk production, thus lowering glucose levels in client.)

Stress importance of home monitoring of condition and maintenance of log of dietary intake, medication, exercise, and signs/symptoms of serum glucose fluctuation.

Although the demands of pregnancy are concluded, postpartal demands of healing/return to nonpregnant state and needs of infant (including lactation) and family will affect diabetic control. Keeping a log provides insight to individual needs/responses to therapy. Note: Increased sensitivity to insulin during first few weeks following delivery places client at high risk for hypoglycemia.

Evaluate client's eyesight and ability to provide infant care in client with long-standing diabetes.

Approximately 15% of diabetic clients will incur an increase of retinopathy during the prenatal period, negatively affecting client's independence and requiring additional teaching/support.

Provide information for class A diabetic client (White's classification) about the need to return for a 3-hr GTT at 6–8 wk postpartum or at cessation of breastfeeding. If tests results are normal, annual follow-up testing is recommended.

About 18% of class A diabetic clients manifest carbohydrate intolerance at 6 wk postpartum. Greater than 70% of clients with GDM eventually develop type 2 diabetes, many within 10 yr following delivery.

Identify signs/symptoms requiring notification of healthcare provider; e.g., continued oozing or lack of progression of lochia, fever, or foul-smelling urine/vaginal drainage.

Prompt evaluation and intervention may prevent or limit development of complications such as hemorrhage and infection.

Discuss client's/couple's plans for future pregnancies and the impact of diabetes on fertility. Review the critical importance of obtaining metabolic control of diabetes prior to conception.

Diabetes, if well controlled, does not alter or reduce fertility rate. Uncontrolled diabetes and elevated HbA<sub>1c</sub> levels during organogenesis greatly increase incidence of malformations. Good metabolic control started before conception and continued during these critical weeks may prevent such malformations.

Determine client's/couple's plans for selecting a contraceptive method.

Choosing a method of contraception involves some compromise between benefits and risks, especially with the diabetic client. Risk of using oral contraceptives or the intrauterine device (IUD) in diabetic clients must be weighed against the risk of pregnancy with other forms of contraception. Note: Cultural/religious beliefs may limit options.

Provide information and review side effects associated with contraceptive choices:

Oral contraceptives;

Side effects include elevated BP and acceleration of blood vessel disease (thrombophlebitis, vascular complications). Estrogen increases the production of cholesterol and triglycerides, and progesterone interferes with insulin activity, accelerating the subclinical diabetic process and creating deterioration in the diabetic state. Note: Progestin-

IUD;	only or triphasic products are considered safer than combined oral contraceptives. Some studies indicate an increased risk of pelvic salpingitis (especially during first 20 days after insertion).
Barrier methods (i.e., condom, diaphragm, cervical caps, sponges, or spermicidal creams);	No side effects or contraindications of these methods are specific for diabetic client, although these methods are not as effective in preventing unwanted pregnancies, in part because of inconsistent use. When a device such as the diaphragm is used in conjunction with a spermicidal cream, effectiveness is significantly increased.
Tubal ligation.	May be desirable for diabetic client with complications of nephropathy, retinopathy, or vascular disease, rather than risk the possibility of future pregnancies with negative maternal/fetal outcomes.
Provide information about effects of diabetes on future offspring.	Heredity contributes to the risk of diabetes. Type 1 (insulin-dependent) diabetes mellitus appears to be transmitted less frequently to offspring of diabetic women than to offspring of diabetic men, although this phenomenon may be caused by perinatal loss of affected offspring by diabetic mothers. If a parent develops type 2 diabetes mellitus, the children are at a greater risk than the general population for developing this type of diabetes.

(Refer to CP: The Client at 4 Hours to 2 Days Postpartum; ND: Knowledge deficit [Learning need], for additional actions.)

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**NURSING DIAGNOSIS:**

**PARENT/INFANT ATTACHMENT, risk for altered**

**Risk Factors May Include:**

Interruption in bonding process, physical illness/changes in physical abilities

**Possibly Evidenced By:**

[Not applicable; presence of signs/symptoms establishes an *actual* diagnosis]

**DESIRED OUTCOMES/EVALUATION**

Demonstrate positive attachment behaviors.

**CRITERIA—CLIENT/COUPLE WILL:**

Verbalize fears and concerns about infant's condition.

Participate optimally in infant contact and care.

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## **ACTIONS/INTERVENTIONS**

## **RATIONALE**

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### **Independent**

Determine current status of infant.

The special needs of the infant of the diabetic mother include hypoglycemia, hypocalcemia, prematurity, and respiratory distress syndrome, possibly necessitating a short- or long-term stay in the neonatal intensive care unit (NICU). Such separation, with diminished physical contact coupled with excessive parental anxiety, may interfere with positive bonding and may create a high-risk parenting situation.

Provide information concerning condition of infant.

Information helps reduce fears and emphasizes the reality of the infant's presence.

Determine client's/couple's feelings concerning infant. Observe contact with infant. (Refer to CP: The Parents of a Child with Special Needs.)

Provides baseline for future comparison; identifies needs and potential concerns.

Assess effectiveness/use of support systems by client/couple.

Strong system of support from family/friends or community facilitates positive adaptation to stress.

Encourage frequent interaction with infant and participation in infant care tasks as client's/infant's condition allows.

Couple may be extremely anxious if infant is in NICU and may be fearful of touching or holding the infant.

Facilitate communication between couple and nursery staff. Point out normal and positive aspects of infant.

Staff can reduce fears, act as role models, and facilitate bonding, especially in caring for preterm infant.

Refer parents to other couples who have had similar experiences with their newborn infants or to the appropriate support groups.

Increases parents' sense of support and helps them to feel that they are not alone. Provides opportunity for creative problem solving.

### **Collaborative**

Refer to visiting nurse services or parenting classes, as indicated.

Client/couple may need additional assistance to promote family integration.

(Refer to CP: Maternal Assessment: 4 to 6 Weeks Following Delivery; ND: Parenting, risk for altered.)