

**From:** Christensen, Dianna  
**Sent:** Wednesday, June 04, 2014 2:39 PM  
**To:** Rodgers, Sandra; Howard Thomas  
**Subject:** FW: GFR-UPDATED  
**Importance:** High

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**From:** Christensen, Dianna  
**Sent:** Wednesday, June 04, 2014 1:32 PM  
**To:** PMBR-ESRD Resource; Howard Thomas ([htconsulting@comcast.net](mailto:htconsulting@comcast.net))  
**Subject:** GFR

Below as well as some attached literature is how GFR is calculated.

**The GFR shall be calculated on Save or Submit of Form 2728. The equations for the calculation methods are as follows:**

**Adult Patients**

**MDRD not IDMS standardized GFR (mL/min/1.73 m(squared)) =  $186 \times (\text{Scr})^{-1.154} \times (\text{Age}^*)^{-0.203} \times (0.742 \text{ if female}) \times (1.212 \text{ if African-American})$**

**MDRD IDMS standardized GFR (mL/min/1.73 m(squared)) =  $175 \times (\text{Scr})^{-1.154} \times (\text{Age}^*)^{-0.203} \times (0.742 \text{ if female}) \times (1.212 \text{ if African American})$**

Creatinine can be determined by blood, CSF, or urine. Blood is serum/plasma and is an approved method.

**Pediatric Patients**

**Schwartz Equation -GFR (mL/min/1.73 m2) = (k x Height) / Creatinine**

- **k = Constant**
- **k = 0.33 in preemie infants before 37 wks. in gestation\***
- **k = 0.45 in term infants ( age < 1 year of age )**

- $k = 0.55$  in children (  $\geq 1$  yr. age  $< 13$  yrs )
- $k = 0.55$  in adolescent females ( age  $\geq 13$  )
- $k = 0.70$  in adolescent males ( age  $\geq 13$  )
- Height in cm
- Creatinine in mg/dL

\*There is currently no method of specifying whether an infant was prematurely or term. Therefore, the system shall use a multiplier of .45 for all infants less than one year of age.

Bedside IDMS Traceable Schwartz Equation -  $GFR (mL/min/1.73 m^2) = (0.413 \times \text{height}) / \text{Creatinine}$

- Height in cm
- Creatinine in mg/dL

Age is calculated by the following:

1. Get today's date and the date of birth and decompose each one into milliseconds. Getting the milliseconds for a date involves calculating the number of milliseconds that have passed since 1/1/1970.
2. Subtract the DOB in milliseconds from today's date in milliseconds and store the result in a new date object.
3. Take the new date object and decompose it into its' year, month and day and perform the following "age in months" calculation:  $\text{Age in months} = (\text{year} - 1970) * 12 + \text{month} + (\text{day of month}/30)$
4. Finally take the result of #3 and divide by 12 to get the patient's age.

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