

**Taking Charge: Good Medical Care for the Elderly
and How to Get It**

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APPENDIX L

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Appendix L

Tools to Monitor Dehydration, Malnutrition, and Kidney Function

In Chapter Seven, you learned about the importance of osmolality as an indicator of dehydration. A valuable part of the medical record you keep for your loved one will be your assessment of his or her hydration status. Using the lab values that you will find in the medical record kept by the nursing home (or by your loved one's physician if your loved one is living independently), you can monitor this status. An important tool is the calculation of osmolality. Keep a copy of this appendix in your three-ring binder and update the osmolality chart frequently.

Calculating Osmolality

	NORMAL	DATE	DATE	DATE
Sodium	135–48			
Potassium	3.5–5.5			
BUN	5–26			
Glucose	65–109			
Osmolality	285–295			

An Internet calculator is found at the following site: www.intmed.mcw.edu/clinicalc/osmol.html

You can also calculate this on paper using the following formula:

$$\text{Serum Osmolality} = (2 \times (\text{Na}+\text{K})) + (\text{BUN}/2.8) + (\text{glucose}/18)$$

Because kidney function is adversely affected by dehydration, keeping track of kidney function is important as an early warning that serious problems exist. An important indicator of kidney function is the ratio of BUN to serum creatinine. You can use the lab values in the chart below to make this calculation. Note that a ratio of 20:1 or higher indicates serious kidney malfunction.

This extra row seems unnecessary. I left it here but removed it on the next 3 tables. Is there a reason for it? What would one put there? If nothing, I could simply make the next-to-last rule a little heavier. See next page.

Appendices

Tracking BUN:Serum creatinine ratio

	NORMAL	DATE	DATE	DATE
A. BUN	5–26			
B. Serum creatinine	65–109			
Ratio = (A÷B)/1	< 20:1			

(Normal is < 20:1)

(BUN: Serum creatinine ratio equals BUN ÷ Serum creatinine:1)

Example: 40:2 equals 40 ÷ 2 to 1 (20 to 1 or 20:1)

Another valuable indicator of kidney function measures how well the kidneys filter and eliminate toxins. This is done by measuring the level of serum creatinine left in the bloodstream after filtration. Use the chart below to record lab values and to record the calculation of estimated glomerular filtration.

Calculating Kidney Function—Estimated Glomerular Filtration rate (GFR)

	NORMAL	DATE	DATE	DATE
A. BUN	5–26			
B. Serum creatinine	65–109			
Est. Creatinine Clearance	85–125 Ω			
	95–135 (M)			

Use this website of the National Kidney Disease Education Association for valuable information, including a calculator on the Internet to calculate estimated glomerular filtration: http://www.nkdep.nih.gov/professionals/gfr_calculators/index.htm

Another GFR calculator is found here: <http://www.clinicalcalculator.com/english/nephrology/cockroft/cca.htm>

You can also use the following formula to calculate estimated creatinine clearance:

For men: $[[140 - \text{age}(\text{yr})] * \text{weight}(\text{kg})] / [72 * \text{serum Cr}(\text{mg/dL})]$

For women: $[[140 - \text{age}(\text{yr})] * \text{weight}(\text{kg})] / [72 * \text{serum Cr}(\text{mg/dL})] \times .85$

Appendices

MONITORING BODY MASS INDEX (BMI)

Use the website below to monitor BMI. For this, you will need to keep track of your loved one's weight and height. Again, clinicians recommend that the elderly be weighed once a week at the same time of day, wearing the same or similar clothing.

Body Mass Index

	DATE	DATE	DATE
Weight			
Height			
Body Mass Index (BMI)			

Use the calculator at <http://www.dr-bob.org/tips/bmi.html>