PROBIOTICS are live microorganisms that, when administered in adequate amounts, confer a health benefit on the host. They are present in numerous products, most commonly in foods and supplements.

WHAT HEALTH EFFECTS ARE ASSOCIATED WITH PROBIOTICS? A growing body of scientific studies points to ways that probiotics can benefit human health, such as supporting digestive health and/or immune function. This includes:

- Reducing antibiotic-associated diarrhea
- Helping manage digestive symptoms
- Improving the ability to fight off colds
- Promoting healthy vaginal tracts
- Improving digestion of lactose

Other benefits include treating infectious diarrhea, and in infants, reducing the risk of eczema, symptoms of colic and necrotizing enterocolitis. Promising targets in initial stages of research include glycemic and weight control and brain function.

Don’t expect all probiotics to have all these effects. Different probiotic strains have been tested for different effects. The best recommendations match the available studies with products.

SAFETY. Probiotic foods and dietary supplements are determined to be safe for the generally healthy population, but follow normal product restrictions and usage instructions. Before probiotics are used during pregnancy, for infants or by patients with compromised immune systems or other major underlying illnesses, you should confirm the safety of this use by consulting with the manufacturer and/or a physician with experience with this use. High quality products should always be used.

HOW CAN I CHOOSE A GOOD PROBIOTIC? An evidence-based approach is best, but no single source provides a fully comprehensive assessment of evidence for probiotic benefits. Some useful tools are:

- Continuing education course: Probiotics Supplementation: What Pharmacists Need to Know To Recommend Safe and Effective Formulations—http://www.powerpak.com/course/preamble/107966
- Probiotics for GI Health in 2012: Issues and Updates, an expired CME course that contains a useful list of probiotics associated with graded evidence of GI benefits (see Table 1)—http://www.primaryissues.org/2012/11/probiotics_p161/
- Refer to the International Scientific Association for Probiotics and Prebiotics (ISAPP) site for additional resources—http://www.isapp.net/Probiotics-and-Prebiotics/Resources

NOT ALL ‘PROBIOTICS’ ARE THE SAME. Just as all ‘pills’ are not the same, different probiotics have varying properties. Most probiotics are bacteria (often from the genera Lactobacillus or Bifidobacterium) or yeast (often Saccharomyces boulardii). It is best to find a product containing the exact strain (or strains) that have demonstrated the best evidence for the benefit you are seeking (see resources in previous section).

JUST BECAUSE IT SAYS ‘PROBIOTIC’ DOESN’T MEAN IT IS A PROBIOTIC. Some products labeled ‘probiotic’ do not contain strains shown to be effective or may not deliver adequate levels of live probiotic through the end of shelf life. Buy from companies you trust who sell products backed by science.
WHAT PHARMACISTS NEED TO KNOW ABOUT PROBIOTICS

FOOD OR SUPPLEMENT—WHICH IS BETTER? Both probiotic foods and supplements have been studied for their health effects. Probiotic foods (often yogurt or cultured milks, but not all these products contain probiotics) are usually refrigerated, short shelf-life products that may provide desired nutritional benefits as well as probiotic health effects. Dietary supplements may be convenient, can potentially deliver higher doses and do not necessarily need to be refrigerated. But it is more important to use a product with evidence of benefit.

WHAT IS THE EFFECTIVE MINIMUM DOSE? Different probiotics have been shown to be effective at various levels. A product with a larger dose is not always better. The dose should match studies demonstrating their benefit(s), which typically ranges from 100 million – 10+ billion cfu/dose.

IS A PRODUCT WITH MANY DIFFERENT STRAINS BETTER THAN ONE WITH FEWER STRAINS? More strains are not necessarily better. The product formulation should match the studies demonstrating the benefit.

IF THERE ARE NO PUBLISHED EFFICACY STUDIES ON A PROBIOTIC, BUT IT SEEMS TO HELP ME, SHOULD I STOP TAKING IT? A responsibly manufactured preparation of live microbes that has not been tested for health benefits may still provide benefits. It is a personal choice to continue or not.

DO PROBIOTICS HAVE TO BE REFRIGERATED? Although refrigeration can improve survival, probiotics can survive at room temperature if the manufacturer has taken care to stabilize the probiotics.

WHAT TO LOOK FOR ON A PRODUCT LABEL:5

- **Microbe.** What probiotic microbe is inside? The genus, species and strain should be specified, such as *Bifidobacterium lactis* Bb-12.
- **CFU (Colony Forming Units).** How many live microorganisms are in each serving or dose through the expiration date (not at time of manufacture)?
- **Suggested serving size.** How much do I take?
- **Health benefits.** What health benefits are claimed for this probiotic? If claims seem too good to be true, they most likely are.
- **Proper storage conditions.** Where do I keep it to ensure maximum survival of the probiotic? (Although in general refrigeration in a dry environment promotes stability, not all probiotics need to be refrigerated to remain stable.)

REFERENCES

4. Additional resources: www.usprobiotics.org; www.isapp.net