

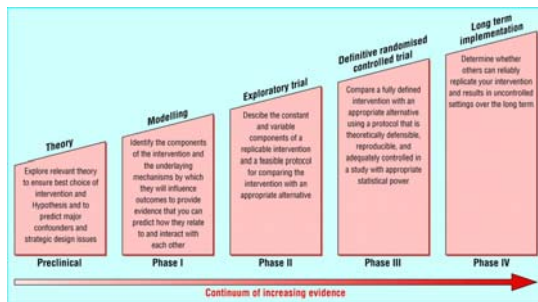
## Celiac Disease Pearls from a Pharmacist

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Annual Canadian Celiac Association Conference  
TGIF  
Victoria BC May 11, 2008

## Objectives

- Define the role of the Pharmacists
- Review label reading for Pharmaceutical Products
- Evidence Based tips for symptom management and healthy living
  - Constipation
  - Diarrhea
  - Skin conditions
  - Supplements
  - Smoking cessation

## Drug Research in Perspective



## Role of a Pharmacist

- Provide information about gluten in the pharmaceutical products
- Be knowledgeable about CD and provide advise on symptom management
- Compliance to diet
- Refer to MD
- Regular follow up

## Pharmaceutical excipients

- Binders
- Disintegrants
- Fillers
- Lubricants
- Glidants
- Compression Aids
- Colors
- Sweeteners
- Preservatives
- Suspending/dispersing agents
- Film Coatings
- Flavours
- Printing inks

## Grains and starches that are acceptable for gluten free formulations

- Amaranth
- Arrowroot
- Beans
- Corn
- Millet
- Nuts
- Potato
- Quinoa
- Rice
- Sorghum
- Soy
- Tapioca

**Active Ingredient.** Therapeutic substance in product; amount of active ingredient per unit.

**Uses.** Symptoms or diseases the product will treat or prevent.

**Warnings.** When not to use the product; conditions that may require advice from a doctor before taking the product; possible interactions or side effects; when to stop taking the product and when to contact a doctor; if you are pregnant or breastfeeding, seek guidance from a health care professional; keep product out of children's reach.

**Inactive Ingredients.** Substances such as colors or flavors.

**Purpose.** Product action or category (such as antihistamine, antacid, or cough suppressant).

**Directions.** Specific age categories, how much to take, how to take, and how often and how long to take.

**Other Information.** How to store the product properly and required information about certain ingredients (such as the amount of calcium, potassium, or sodium the product contains)

## Gluten-free Pharmaceuticals

### • Sweeteners and vehicles

– Sucrose: OKAY

– Corn syrup: OKAY

– Caution:

- source of sugar alcohols: xylitol, malitol
- Rice syrup: ensure not made with barley
- Dextrin and Maltodextrin: okay if derived from corn but not from wheat source
- Mono and di-glycerides in dry form: ensure made in gluten free/uncontaminated environment

## Constipation

Clinical Definition: 2 of the following in the 12 week period in previous year

- Fewer than 3 bowel movements per week
- Hard stool >25% of time
- Sense of incomplete evacuation >25% of time
- Excessive straining > 25% of time
- Digital manipulation

World Gastroenterology Organization Practice Guidelines 2007

## Causes of Constipation

### • Nutrition

– Insufficient hydration

– Insufficient fiber intake

### • Slow transit constipation

### • Irritable bowel syndrome

### Red Flags

#### • Outlet obstruction

#### • Malignancy

## Constipation: Treatment

Fig. 1 Graded treatment of constipation



World Gastroenterology Organization 2007 Guidelines: Constipation

## Constipation Treatment

### 1. Fiber : bulk laxatives

– Metamucil: all products (except wafers) are GLUTEN FREE

### 2. Lubricating oil: Mineral oil (Causes malabsorption of fat soluble vitamins eg, Vit K)

### 3. Stimulants

– Dulcolax (APO-Bisacodyl) GLUTEN FREE

– Senokot GLUTEN FREE

### 4. Osmotic agents

– Lactulose – **check use with your doctor, not safe if leaky gut syndrome**

### 5. Enemas

## Diarrhea

- Definition: increase in frequency, amount and water content of bowel movement.
- Note: Malabsorption diarrhea: not watery, formed but bulky
- **Red flags:**
  - Fever
  - Weight loss
  - Bleeding (rectally or in stools)
  - Family history of inflammatory bowel disease
  - CD, GI cancer, new symptoms onset in patients >50 yrs, persistent diarrhea, severe constipation and abdominal mass

## Diet

- Acute diarrhea: give oral rehydration fluid
- Maximum: wait 4 hrs before giving food
- Frequent small meals
  - Energy rich foods: fruits, veggies, gluten free pastas/breads, meat if tolerated
- Avoid: hyper-osmolar drinks/juices such as canned juice

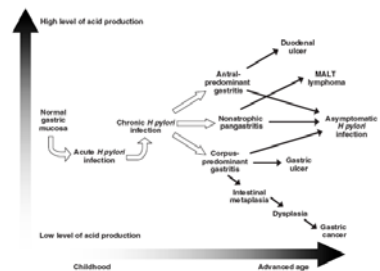
## Anti-diarrheal Treatments

- Loperamide (Imodium™)
  - Caplets and quick dissolve tablets are listed by company as GLUTEN FREE.
- Diphenoxylate/atropine (Lomotil™)

### Red flags

- **Note: these products do not treat diarrhea, they slow down the gut.**
- **Not to be used for infectious diarrhea!**

## H Pylori Infection



NEJM 2002;347:1175-1186.

## Evidence for H Pylori in CD population

- Fact: Pts with H pylori gastritis have their intraepithelial lymphocytes normalized with eradication treatment.
- Question: Does H pylori infection play a role in CD?
- Question: Will gluten free diet affect outcomes of H pylori treatment?
- Study of 80 patients with CD; went on GF diet and observed for H pylori and gastritis
- The clinical features of CD patients are unrelated to H. pylori gastritis
- Gluten-free diet is equally effective in infected as in uninfected patients

American Journal of Gastroenterology. 101(8):1880-1885, August 2006.

## When should you treat *H. pylori* infection?

- All patients with proven gastric or duodenal ulcers who are infected with *H. pylori*.
- Patients with previously proven recurrent duodenal ulcers who are currently requiring maintenance antiulcer therapy.
- For management of the small number of peptic ulcers in children a definitive endoscopic and microbiological diagnosis is advisable

## Type 2 Diabetes & Omega 3

- Increased risk of cardiovascular disease
- High cholesterol and triglyceride levels are risk factors for cardiovascular disease
- Omega-3 supplementation have an impact on cholesterol, glycemic control and vascular outcomes?

Hartwed J et al. Cochrane Database of Systematic Reviews. 1, 2008.

## Systematic Review of Omega-3 & Type 2 Diabetes

- Systematic review included 23 randomized controlled trials
- Mean dose 3.5g/day
- Triglyceride levels significantly reduced (-0.45mmol/L)
- VLDL cholesterol significantly reduced (-0.07 mmol/L)
- LDL increased by 0.11mmol/L (NSS)
- No change: HDL, HbA1C, FBG, body weight

Hartwed J et al. Cochrane Database of Systematic Reviews. 1, 2008.

## Omega-3 and Type 1 DM

- Pancreatic islet cell autoimmunity (IA) is associated with development of Type 1 diabetes
- Longitudinal study followed 1770 children in Denver, Colorado, for 6.2 years
- Omega-3 fatty acid intake was inversely associated with risk of IA (hazard ratio [HR], 0.45; 95% confidence interval [CI], 0.21-0.96;  $P = .04$ ).

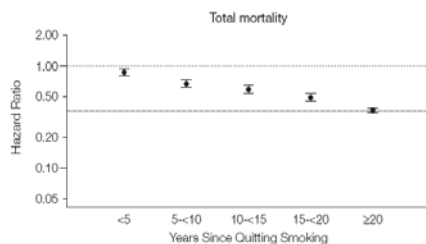
Norris et al. JAMA 2007; 298:1420-1428

## Smoking

- Leading preventable cause of death
- Globally, 5 million premature deaths were attributed to smoking in 2000
- WHO's 2030 projection:
  - 3 million deaths in Industrialized countries
  - 7 million deaths in developing countries
- A large study assessed effects of smoking cessation in women

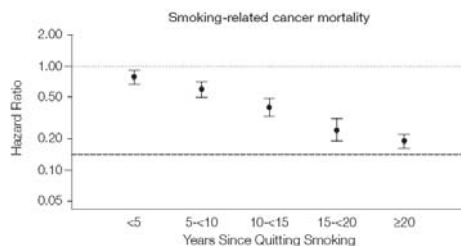
Kenfield SA, et al. JAMA 2008 (May); 299(17):2037-2047

## Mortality Benefit with Smoking Cessation in Women

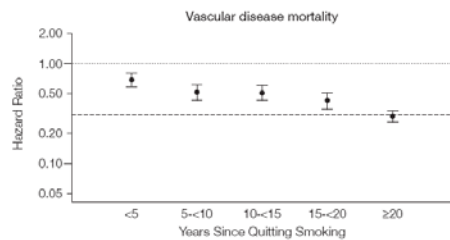


Kenfield SA, et al. JAMA 2008 (May); 299(17):2037-2047

## Smoking Related Cancer Mortality benefit with Smoking Cessation

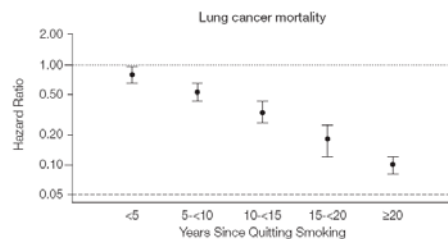


## Vascular Disease Mortality



Kenfiled SA, et al. JAMA 2008 (May); 299(17):2037-2047

## Lung Cancer Mortality



Kenfiled SA, et al. JAMA 2008 (May); 299(17):2037-2047

## Resistant Organisms

Community-acquired *Staphylococcus aureus*

## Treatment of Mild to Moderate CA-MRSA Skin Infections

1. Oral Medications
  - TMP-SMX (Bactrim™): APO brand: GLUTEN FREE
  - Doxycycline: APO brand GLUTEN FREE, has lactose

## Handwashing

**Wash your hands with soap and water for at least 15 seconds:**

- anytime when dirty
- before and after each dressing change
- after using the washroom
- before and after eating or handling food.

1. Patient Self Care 1st ed. Canadian Pharmacists Association. Pg. 592-621.  
2. Giuseppe M. Cellulitis. Emedicine: <http://www.emedicine.com/derm/topic464.htm>  
3. Hand Hygiene (leaflet), Fraser Health; April 22, 2007

## Patient Guide : Looking After Your Skin Infection

Signs and symptoms of a worsening infection:

- Increased pain or swelling in the area of infection
- Increased warmth or redness of the surrounding area
- Discharge/drainage from infection site (brown, green, or yellow)
- Increased discharge/drainage more than 5 days after starting antibiotic treatment
- Fever following initiation of antibiotic treatment

## Prevention of Transmission

1. Handwashing using proper technique.
2. **Not sharing personal articles** such as:
  - creams, lotions, soaps
  - cosmetics
  - towels
  - clothing
  - razors
  - toothbrushes
  - nail files
  - combs and brushes
3. Covering draining skin lesions
4. Discarding used dressings appropriately
5. Wearing clean clothing and using clean linens
6. Informing those around you if your infection is potentially transmissible.

## Probiotics

- Meta-analysis of 6 placebo controlled trials
- 766 children
- Use of probiotics compared with placebo reduced the risk of antibiotic associated diarrhea from 28.5% to 11.9%
- *Lactobacillus* GG, *S. boulardii*, or *B. lactis* + *Str. thermophilus*

## Meta-analysis 2: Probiotics

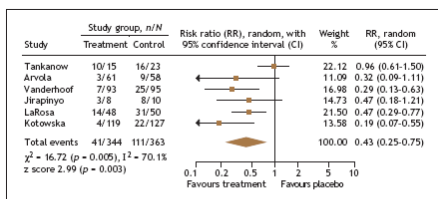


Fig 2: Per-protocol analysis of pediatric incidence of antibiotic-associated diarrhea. Although the difference in overall effect (i.e., the z score) was statistically significant, so too was the heterogeneity ( $I^2$ , here with 5 degrees of freedom. Note also that higher values of  $I^2$  indicate greater heterogeneity).

## Probiotics: not a cure Experience from Crohn's Disease

- Can luminal bacteria be possible alternative to antibiotics in preventing recurrence?
- Randomized, placebo control trial
- 33 patients with Crohn's surgery to remove diseased gut, were put on 12 billion CFU of *Lactobacillus* or placebo
- *Lactobacillus* neither prevented or reduced the severity of recurrence of lesions

Gut 2005;51:405-409

## Conclusion

- Use dependable sources of information
- Use health products that have scientifically proven clinical evidence
- Look for accurate consumer information
- Quality products that fulfil consumer expectation

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