



# think PEI

Insights on Pancreatic Exocrine  
Insufficiency (PEI)

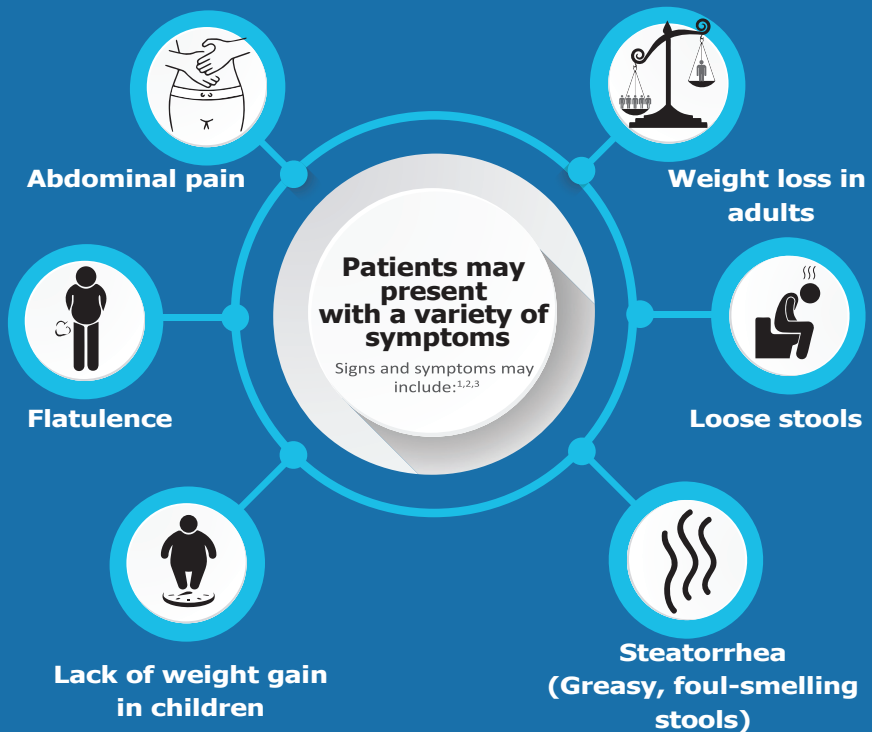
## **Clinical considerations and potential outcomes**

PEI can occur in several distinct patient groups.<sup>1</sup> This brochure provides details on the most common symptoms you should look out for, patients who are at the greatest risk of developing PEI, and the importance of treatment.

**Know the symptoms and implications—THINK PEI.**

## PEI: A CAUSE OF MALNUTRITION

The pancreas plays an important role in maintaining effective digestion and nutrient absorption through the secretion of specific enzymes.<sup>1,2</sup> PEI occurs when the pancreas fails to secrete sufficient amounts of these enzymes to maintain normal digestive processes, resulting in fat maldigestion and malabsorption.<sup>1,2,3</sup>



Pancreatic enzyme replacement therapy (PERT) is recommended as the FIRST-LINE treatment for PEI.<sup>1</sup>

# PEI OCCURS AS A RESULT OF SEVERAL MEDICAL CONDITIONS

Prevalence of mild to moderate PEI in various patient populations<sup>4-7</sup>



**CYSTIC FIBROSIS 55–100%**



**CHRONIC PANCREATITIS 80–90%**



**HIV 23–54%**



**TYPE 1 DIABETES 26–44%**



**CELIAC DISEASE 15–40%**

Pooled analysis of prevalence data from studies that assessed PEI in various patient populations. PEI was defined as  $\leq 200$  mcg elastase/1 g stool. HIV: Human Immunodeficiency Virus.

## Characterization of Chronic Pancreatitis (CP)<sup>8</sup>

- Persistent or recurrent episodes of epigastric and left upper quadrant pain
- Anorexia, nausea, vomiting, constipation, flatulence and weight loss are common

Alcoholism

- Most common cause of CP
- May occur with prolonged consumption of as little as  $\leq 50$  g/d<sup>10</sup>

Tobacco Smoking

- Risk factor for CP
- Can accelerate progression of alcoholic CP

Obstruction

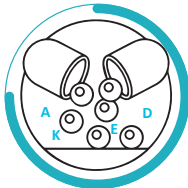
- Obstruction of pancreatic duct by stricture, stone, or tumour

When treating any of these patients, remember to THINK PEI.

# CLINICAL CONSEQUENCES OF PEI

PEI is not just associated with gastrointestinal complaints. Left untreated it may be associated with malnutrition-related morbidity and increased risk of mortality.<sup>9</sup>

Without adequate treatment PEI can lead to:<sup>1,3</sup>



Vitamin deficiency



Malnutrition

These deficiencies have been associated with:<sup>1,3,9</sup>



Reduced bone mineral density



Increased risk of cardiovascular events



Increased risk of mortality

If your patients are presenting with any of the symptoms discussed in this brochure, be sure to **THINK PEI.**

1. Toouli J et al. Management of pancreatic exocrine insufficiency: Australasian Pancreatic Club recommendations. Med J Aust. 2010;193(8):461–7. 2. Fieber A et al. Enzyme replacement therapy for pancreatic insufficiency: present and future. Clin Exp Gastroenterol. 2011;4:55–73. 3. Sikkens ECM et al. Pancreatic enzyme replacement therapy in chronic pancreatitis. Best Pract Res Clin Gastroenterol. 2010;24(3) : 33 – 47. 4. Carroccio A et al. Pancreatic dysfunction and its association with fat malabsorption in HIV infected children. Gut. 1998;43:558–63. 5. Carroccio A et al. Exocrine Pancreatic Function and Fat Malabsorption in Human Immunodeficiency Virus-Infected Patients. Scand J Gastroenterol. 1999;34(7):729–34. 6. Keller J and Laver P. Human pancreatic exocrine response to nutrients in health and disease. Gut. 2005;54(Suppl 6):vi1–28. 7. Leeds J et al. The role of fecal elastase-1 in detecting exocrine pancreatic disease. Nat Rev Gastroenterol Hepatol. 2011;8(7):405–15. 8. Friedman LS et al. (2016) Liver, Biliary Tract, & Pancreas Disorders. In Current Medical Diagnosis & Treatment (55th edition). McGraw-Hill. 9. Lindqvist B. Diagnosis and treatment of pancreatic exocrine insufficiency. World J Gastroenterol. 2013;19(42):7258–66. 10. Lankisch 2001, Alcohol and CP

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