Table 15c. Antiretroviral Therapy–Associated Adverse Effects and Management Recommendations—Gastrointestinal Effects

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Adverse Effects	Associated ARVs	Onset/Clinical Manifestations	Estimated Frequency	Risk Factors	Prevention/ Monitoring	Management
Nausea/ Vomiting	All ARV drugs, but most notably RTV-boosted PIs	**Onset** • Early **Presentation** • Nausea and emesis, both of which may be associated with anorexia and/or abdominal pain	Varies by ARV agent; generally <15%	Unknown	• Instruct patient to take PIs with food. • Monitor for weight loss and ARV adherence.	• Reassure the patient that these adverse effects generally improve over time (usually in 6–8 weeks). • Consider switching to ARV drugs with smaller tablet sizes (see Appendix A,Table 2. Antiretroviral Fixed-Dose Combination Tablets: Minimum Body Weights and Considerations for Use in Children and Adolescents). • Provide supportive care. • In extreme or persistent cases, use antiemetics or switch to another ARV regimen.
Diarrhea	All ARV drugs, but most notably RTV-boosted PIs	**Onset** • Early **Presentation** • More frequent bowel movements and stools that are generally soft	Varies by ARV agent; generally <15%	Unknown	Monitor for weight loss and dehydration.	• In prolonged or severe cases, exclude infectious or noninfectious (e.g., lactose intolerance) causes of diarrhea. • Reassure patient that this adverse effect generally improves over time (usually in 6–8 weeks). Consider switching to another ARV

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						regimen in persistent and severe cases.
						• Treatment data in children are lacking; however, the following strategies may be useful when the ARV regimen cannot be changed:
						  • Modifying the diet
						  • Using bulk-forming agents (e.g., psyllium)
						  • Using antimotility agents (e.g., loperamide)
						  • Using crofelemer, which is approved by the FDA to treat ART-associated diarrhea in adults aged ≥18 years; no pediatric data are available.

Pancreatitis	Rare, but may occur with NRTIs or RTV-boosted PIs	**Onset** • Any time, usually after months of therapy **Presentation** • Emesis, abdominal pain, elevated amylase and lipase levels (asymptomatic hyperamylasemia or elevated lipase do not in and of themselves indicate pancreatitis)	<2%	Use of concomitant medications that are associated with pancreatitis (e.g., TMP-SMX, pentamidine, ribavirin) Hypertriglyceridemia Advanced HIV infection Previous episode of pancreatitis Alcohol use	Measure serum amylase and lipase concentrations if persistent abdominal pain develops.	• Discontinue offending agent and **avoid reintroduction.** • Manage symptoms of acute episodes. • If pancreatitis is associated with hypertriglyceridemia, consider using interventions to lower TG levels.

Key: ART = antiretroviral therapy; ARV = antiretroviral; FDA = U.S. Food and Drug Administration; NRTI = nucleoside reverse transcriptase inhibitor; PI = protease inhibitor; RTV = ritonavir; TG = triglyceride; TMP-SMX = trimethoprim sulfamethoxazole

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