USEFUL FOR
Determining bismuth toxicity

CLINICAL INFORMATION
Bismuth is used in the production of alloys, pigments and chemical additives. Various compounds have also been used as therapeutic agents, astringents, antacids. Bismuth subsalicylate (Pepto-Bismol) is one example commonly used for indigestion and diarrhea.

In unexposed individuals, bismuth blood concentrations were typically <0.02 mcg/L compared to peptic ulcer patients taking bismuth medications where the concentrations ranged from 4 to 30 mcg/L. Elimination from the body takes place primarily by the urinary and fecal routes, but the exact proportion contributed by each route is still unknown. Elimination from blood displays multicompartment pharmacokinetics with half-lives of 8 to 16 hours (early) and 5 to 11 days (late).

A number of toxic effects have been attributed to bismuth compounds in humans including: nephropathy, encephalopathy, osteoarthropathy, gingivitis, stomatitis and colitis. Common early symptoms include salivation, mucosal swelling, discoloration of the tongue, gums, abdominal pain, and nausea.

INTERPRETATION
Normal blood concentrations for unexposed individuals are <1 ng/mL and therapeutic ranges 4 to 30 ng/mL.

CLINICAL REFERENCE
1. Baselt R: Disposition of Toxic Drugs and Chemicals In Man. 10th edition. 2014, Biomedical Publications. Seal Beach, CA