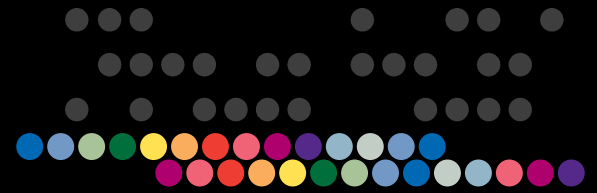




CDSA and CDSA^{2.0}

COMPREHENSIVE DIGESTIVE
STOOL ANALYSIS



Why are these two tests important, and how do they differ?

The CDSA and the CDSA 2.0 offer a comprehensive look at the overall health of the gastrointestinal (GI) tract. They provide information about digestion, absorption, bacterial balance, yeast overgrowth, inflammation, metabolic activity, and immune function.

CDSA is the original non-invasive evaluation of gastrointestinal function that includes analyses of digestion, absorption, bacterial balance, yeast and parasites. This profile is recommended for patients with diffuse and non-specific GI-related symptoms, such as indigestion, dysbiosis, constipation, and diarrhea.

CDSA 2.0 uses advanced GI biotechnology to evaluate digestion, absorption, pancreatic function, and inflammation, in addition to bacterial balance, yeast, and parasite infection. The CDSA 2.0 also helps identify inflammatory conditions (including subclinical inflammation) such as food allergies, Inflammatory Bowel Disease (IBD), NSAID enteropathy, and post-infectious Irritable Bowel Syndrome (IBS).

What do these tests involve?

The patient collects 1 stool sample. If parasite testing is requested, two additional samples are required. The samples are transferred into vials and shipped to the lab, where they are analyzed. The final report includes up to twenty one different pieces of information and an interpretative summary.

What are the consequences of imbalanced gastrointestinal health?

- IBS can be the result of maldigestion, malabsorption, dysbiosis, and/or inflammation.
- Maldigestion can result in GI symptoms such as gas, bloating, abdominal pain, constipation or diarrhea.
- Chronic maldigestion can lead to bacterial/fungal overgrowth and alterations in gut permeability. Toxins and large molecules that escape the intestinal barrier can enter the general circulation, inflame the liver, burden the body's detoxification system, and increase the risk for food allergies, joint disease, and imbalances in overall health.
- Malabsorption can lead to deficiencies of nutrients, proteins, carbohydrates and fats. This can result in long term health complications such as anemia, malnutrition, impaired metabolism and other diseases, such as osteoporosis.
- Chronic dysbiosis can lower the levels of beneficial short chain fatty acids and alter bacterial metabolic activity, thereby increasing the risk of carcinogenesis, hormonal imbalance and GI inflammation.
- Altered GI immune function and exposure to bacterial pathogens can lead to diarrhea, mucosal inflammation, intestinal permeability, toxin production and auto-immune disorders.

INTERPRETIVE GUIDELINES

INTERPRETIVE
GUIDELINES

Digestive Markers

Analyte, related Profiles	Result	Suspect	Consider
Chymotrypsin CDSA/P, CDSA, Digestive Function, Optional add-on with CDSA 2.0 CDSA 2.0 without Parasitology	Low <0.9 mcg/g	Pancreatic insufficiency or hypochlorhdyria Other factors include slow transit time	Assess putrefactive SCFAs Therapeutic Interventions: Pancreatic enzyme supplementation and/or betaine HCL Dietary fiber (insoluble) to improve transit time
	Normal 0.9-26.8 mcg/g 1 SD=2.1-13.7	Adequate exocrine pancreatic function	1-2 SD = Results from 1-2 SD (yellow range) warrant clinical correlation even though within the "normal" reference range.
	Elevated >26.8 mcg/g	Rapid transit time	Rule out false elevations from diarrhea (assess pancreatic elastase 1 levels) Further Testing: <ul style="list-style-type: none"> Comprehensive Parasitology Profile Bacterial Overgrowth of the Small Intestine Lactose Intolerance Food Antibody Assessment Celiac Testing

Analyte, related Profiles	Result	Suspect	Consider
Pancreatic Elastase 1 (PE1) CDSA 2.0, CDSA 2.0 without Parasitology, Optional add-on with CDSA/P, CDSA, Digestive Function, Stand alone test	Low 100-200 mcg/g	Mild to moderate pancreatic insufficiency	Further Testing: <ul style="list-style-type: none"> Intestinal Permeability Assessment Comprehensive Parasitology Profile Celiac Testing Therapeutic Interventions: Pancreatic enzyme supplementation
	Very Low <100 mcg/g	Moderate to severe pancreatic insufficiency	Further Testing: <ul style="list-style-type: none"> Bone Resorption Assessment Glucose/Insulin Analysis* Celiac Testing Bacterial Overgrowth of the Small Intestine Therapeutic Interventions: Pancreatic enzyme supplementation Vitamin and mineral supplementation
	Normal >200 mcg/g	Adequate exocrine pancreatic function	No further action necessary Pancreatic supplementation may be of benefit in low normal (<400 mcg/g) range

Analyte, related Profiles	Result	Suspect	Consider
Putrefactive Short-Chain Fatty Acids (SCFA's) CDSA/P, CDSA, Optional add-on with CDSA 2.0, CDSA 2.0 without parasitology	Low <1.3 micromol/g	Low protein diet	Further Testing: <ul style="list-style-type: none"> Amino Acid Analysis
	Normal 1.3-8.6 micromol/g 1 SD=2.2-6.2	Adequate digestion and absorption of dietary protein	1-2 SD = Results from 1-2 SD may warrant clinical correlation even though within the "normal" reference range.
	Elevated >8.6 micromol/g	Hypochlorhdyria, exocrine pancreatic insufficiency, or protein malabsorption Other causes include bacterial overgrowth of the small bowel, gastrointestinal disease, and/or rapid transit time	Assess pancreatic elastase 1 to evaluate exocrine pancreatic function Further Testing: <ul style="list-style-type: none"> Bacterial Overgrowth of the Small Intestine <i>Helicobacter pylori</i> Antibody Assessment Therapeutic Interventions: Betaine HCL supplementation and/or pancreatic enzyme supplementation

Analyte, related Profiles	Result	Suspect	Consider
Meat fibers/Vegetable fibers CDSA/P, CDSA, Digestive Function	Inside reference range; Meat none Vegetable fibers None-Few	Adequate digestion and absorption of dietary protein (meat or fish) and vegetable fiber	Assess chymotrypsin and/or pancreatic elastase 1, putrefactive SCFAs
	Outside reference range: Meat rare-many Vegetable fibers few-many	Pancreatic insufficiency, hypochlorhydria, inadequate mastication, bile salt insufficiency	Assess chymotrypsin and/or pancreatic elastase 1, putrefactive SCFAs Therapeutic Interventions: Pancreatic enzyme supplementation Betaine HCL Cholagogues

Absorption Markers

Analyte, related Profiles	Result	Suspect	Consider
Triglycerides CDSA/P, CDSA, Digestive Function. Optional add-on (as a part of Fecal Fats) with CDSA 2.0 CDSA 2.0 without Parasitology	Low <0.2 mg/g	Low dietary fat intake	Assess other markers of fat metabolism (LCFAs, phospholipids, cholesterol and fecal fat) Further Testing: • Essential & Metabolic Fatty Acid Analysis
	Normal 0.2-3.3 mg/g 1 SD=0.4-1.7	Adequate fat hydrolysis	1-2 SD = Results from 1-2 SD may warrant clinical correlation even though within the "normal" reference range.
	Elevated >3.3 mg/g	Incomplete fat hydrolysis Rule out: Bile insufficiency Reduced pancreatic function High fat diet Hypochlorhydria	Assess other markers of fat metabolism (LCFAs, phospholipids, cholesterol and fecal fat), chymotrypsin and/or pancreatic elastase 1 Further Testing: • Intestinal Permeability Assessment • Essential & Metabolic Fatty Acid Analysis Therapeutic Interventions: Cholagogues, betaine HCL supplementation and/or pancreatic enzyme supplementation

Analyte, related Profiles	Result	Suspect	Consider
Long Chain Fatty Acids (LCFAs) CDSA/P, CDSA, Digestive Function, Optional add-on (as a part of Fecal Fats) with CDSA 2.0 CDSA 2.0 without Parasitology	Low <1.3 mg/g	Low dietary fat intake	Assess other markers of fat metabolism (triglycerides, phospholipids, cholesterol and fecal fat) Further Testing: • Essential & Metabolic Fatty Acid Analysis
	Normal 1.3-23.7 mg/g 1 SD=3.4-15.8	Adequate free fatty acid absorption	1-2 SD = Results from 1-2 SD may warrant clinical correlation even though within the "normal" reference range.
	Elevated >23.7 mg/g	Malabsorption Increased mucosal cell turnover Bacterial overgrowth of the small intestine Bile insufficiency	Assess other markers of fat metabolism (triglycerides, LCFAs, phospholipids and fecal fat), chymotrypsin and/or PE1 Further Testing: • Bacterial Overgrowth of the Small Intestine • Intestinal Permeability Profile • Essential & Metabolic Fatty Acid Analysis Therapeutic Interventions: Cholagogues, betaine HCL supplementation and/or pancreatic enzyme supplementation

Absorption Markers, continued

Analyte, related Profiles	Result	Suspect	Consider
Cholesterol CDSA/P, CDSA, Digestive Function, Optional add-on (as a part of Fecal Fats) with CDSA 2.0 CDSA 2.0 without Parasitology	Low <0.2 mg/g	Low dietary fat intake	Assess other markers of fat metabolism (triglycerides, LCFAs, phospholipids and fecal fat) Further Testing: • Essential & Metabolic Fatty Acid Analysis
	Normal 0.2-3.5 mg/g 1 SD=0.4-2.0	Adequate absorption of dietary cholesterol	1-2 SD = Results from 1-2 SD may warrant clinical correlation even though within the "normal" reference range.
	Elevated >3.5 mg/g	Malabsorption Increased mucosal cell turnover Bacterial overgrowth of the small intestine	Assess other markers of fat metabolism (triglycerides, LCFAs, phospholipids and fecal fat), chymotrypsin and/or pancreatic elastase 1 Further Testing: • Bacterial Overgrowth of the Small Intestine • Intestinal Permeability Assessment • Essential & Metabolic Fatty Acid Analysis Profile Therapeutic Interventions: Cholagogues, betaine HCL supplementation and/or pancreatic enzyme supplementation
Phospholipids CDSA/P, CDSA, Digestive Function, Optional add-on (as a part of Fecal Fats) with CDSA 2.0 CDSA 2.0 without Parasitology	Low <0.2 mg/g	Insufficient dietary fat intake Dietary phospholipid deficiency Impaired gall bladder function	Assess other markers of fat metabolism (triglycerides, LCFAs, phospholipids and fecal fat), chymotrypsin and/or pancreatic elastase 1 Further Testing: • Essential & Metabolic Fatty Acid Analysis Therapeutic Interventions: Phosphatidyl choline (lecithin) Phosphatidyl serine Phosphatidyl inositol
	Normal 0.2-8.8 mg/g 1 SD=0.4-4.7	Adequate dietary phospholipid intake and absorption	1-2 SD = Results from 1-2 SD may warrant clinical correlation even though within the "normal" reference range.
	Elevated >8.8 mg/g	Malabsorption Reduced bile salt resorption Increased mucosal cell turnover	Assess other markers of fat metabolism (triglycerides, LCFAs, cholesterol and fecal fat), chymotrypsin and/or pancreatic elastase 1, eosinophil protein X (EPX) and calprotectin Further Testing: • Intestinal Permeability Assessment • Essential & Metabolic Fatty Acid Analysis Therapeutic Interventions: Cholagogues, betaine HCL supplementation and/or pancreatic enzyme supplementation
Fecal Fat (Total) CDSA/P, CDSA, Digestive Function, Optional add-on with CDSA 2.0 CDSA 2.0 without Parasitology	Low <2.6 mg/g	Low dietary fat intake	Assess other markers of fat metabolism (triglycerides, LCFAs, cholesterol and phospholipids) Further Testing: • Essential & Metabolic Fatty Acid Analysis
	Normal 2.6-32.4 mg/g 1 SD=6.1-23	Adequate dietary fat absorption	1-2 SD = Results from 1-2 SD may warrant clinical correlation even though within the "normal" reference range.

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Analyte, related Profiles	Result	Suspect	Consider
Fecal Fat (Total) (Continued)	Elevated >32.4 mg/g	Malabsorption, increased mucosal cell turnover, bacterial overgrowth of the small intestine	Assess other markers of fat metabolism (triglycerides, LCFAs, cholesterol and phospholipids), chymotrypsin and/or pancreatic elastase 1, eosinophil protein X (EPX) and calprotectin Further Testing: • Intestinal Permeability Assessment • Essential & Metabolic Fatty Acid Analysis Therapeutic Interventions: Cholagogues, betaine HCL supplementation and/or pancreatic enzyme supplementation

Metabolic Markers

Analyte, related Profiles	Result	Suspect	Consider
Short-Chain Fatty Acids (SCFAs) CDSA/P, CDSA, CDSA 2.0, CDSA 2.0 without Parasitology, Digestive Function	Low <13.6 micromol/g	Insufficient fiber Slow transit time Recent antibiotic therapy	Dietary and Therapeutic Interventions: Dietary fiber and resistant starch, prebiotics & probiotics, butyric acid (oral or rectal)
	Normal ≥ 13.6 micromol/g 1 SD ≥ 29.8	Suggests adequate energy for the colonocytes	1-2 SD = Results from 1-2 SD may warrant clinical correlation even though within the "normal" reference range.

Analyte, related Profiles	Result	Suspect	Consider
SCFA distribution CDSA/P (as part of SCFAs), CDSA (as part of SCFAs), Optional add-on with CDSA 2.0 CDSA 2.0 without Parasitology	Inside reference range Acetate 44.5-72.4% Propionate $\leq 32.1\%$ n- Butyrate 10.8-33.5%	Adequate balance among anaerobic organisms in the colon	No further action necessary
	Outside reference range Acetate <44.5% or >72.4% Propionate >32.1% n- Butyrate <10.8 or >33.5%	Imbalance among anaerobic organisms in the colon. Elevated % recovery of acetate suggests an overgrowth of anaerobic flora, specifically <i>Clostridium</i>	Assess <i>Bifidobacteria</i> Further Testing: • <i>Clostridium difficile</i> EIA

Analyte, related Profiles	Result	Suspect	Consider
n-butyrate (as part of SCFAs) CDSA/P, CDSA, CDSA without Parasitology, CDSA 2.0, Digestive Function	Low <2.5 micromol/g	Insufficient fiber Slow transit time Recent antibiotic therapy	Dietary and Therapeutic Interventions: Dietary fiber and resistant starch, prebiotics and probiotics, butyric acid (oral or rectal)
	Normal ≥ 2.5 micromol/g 1 SD ≥ 5.6	Adequate energy for the colonocytes	1-2 SD = Results from 1-2 SD may warrant clinical correlation even though within the "normal" reference range.

Metabolic Markers, continued

Analyte, related Profiles	Result	Suspect	Consider
pH CDSA/P, CDSA, CDSA 2.0, CDSA 2.0 without Parasitology, Digestive Function	Low <6.1	Carbohydrate maldigestion or malabsorption, osmotic laxatives, rapid transit time, or small bowel bacterial overgrowth	Further Testing: <ul style="list-style-type: none"> Bacterial Overgrowth of the Small Intestine Lactose Intolerance Essential & Metabolic Fatty Acid Analysis Therapeutic Interventions: Plant or pancreatic enzymes, betaine HCL and/or disaccharidases
	Normal 6.1-7.9 1 SD=6.6-7.4	Balanced concentration between acids and bases within the colon	1-2 SD = Results from 1-2 SD may warrant clinical correlation even though within the "normal" reference range.
	Elevated >7.9	High protein and/or low fiber diet Dysbiosis Slow transit time Hypochlorhydria Increased bile flow rate Pancreatic bicarbonate Associated with increased risk for colorectal cancer	Assess putrefactive SCFAs Dietary and Therapeutic Interventions: Reduce dietary fat and protein; increase fiber (particularly resistant starch) Probiotic supplementation Prebiotic supplementation
Beta-glucuronidase CDSA/P, CDSA, CDSA 2.0, CDSA 2.0 without Parasitology	Low <337 U/g	Reduced enterohepatic recirculation and increased excretion of toxins, drugs, steroid hormones, and other compounds subject to glucuronidation Rule out recent use of broad-spectrum antibiotics	Further Testing: <ul style="list-style-type: none"> Standard Detoxification Profile DetoxiGenomic™ Profile
	Normal 337-14,433 U/g 1 SD=647-2143	Balanced microbial activity from anaerobic organisms that produce this enzyme (<i>Bacteroides</i> , <i>Clostridia</i> , <i>E.coli</i> , <i>Peptostreptococcus</i>)	1-2 SD = Results from 1-2 SD may warrant clinical correlation even though within the "normal" reference range.
	Elevated >4,433 U/g	Increased activation and enterohepatic recirculation of toxins, hormones, and various drugs within the body. Increased burden on glucuronidation pathway is associated with increased risk of colorectal, prostate and breast cancers	Assess stool pH (alkaline pH induces the activity of beta-glucuronidase) Further Testing: <ul style="list-style-type: none"> Women's Hormonal Health Assessment Estrogen Metabolism Assessment Female Hormone Profile Menopause Profile Standard Detoxification Profile DetoxiGenomic™ Profile Dietary and Therapeutic Interventions: Reduce fatty meat intake; increase insoluble dietary fiber Probiotics (<i>Lactobacilli</i> and <i>Bifidobacteria</i>), Silybum marianum, calcium-D-glucarate

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Analyte, related Profiles	Result	Suspect	Consider
Lithocholic: Deoxycholic acid ratio (LCA:DCA) CDSA 2.0, CDSA 2.0 without Parasitology, Optional add-on with CDSA/P and CDSA Stand alone test	Low <0.39 mg/g	Imbalanced colonic ecology (<i>Clostridia</i> , <i>Bacteroides</i> , <i>Enterococcus</i> and <i>Lactobacilli</i> modify primary bile acids into secondary bile acids). Rule out recent broad spectrum antibiotic therapy	Assess microbial ecology
	Normal 0.39-2.07 mg/g 1 SD=0.66-1.55	Healthy ratio of secondary bile acids reflecting balance between dietary and endogenous cholesterol	1-2 SD = Results from 1-2 SD may warrant clinical correlation even though within the "normal" reference range.
	Elevated >2.07	Inhibition of glutathione-S-transferase with subsequent recirculation of procarcinogens. Associated with increased risk of breast and colorectal cancer Small bowel bacterial overgrowth, cholelithiasis and cholecystectomy	Consider the levels of calprotectin, beta-glucuronidase, pH, n-butyrate and occult blood to assess overall neoplastic risk Further Testing: <ul style="list-style-type: none"> • Bacterial Overgrowth of the Small Intestine • Estrogen Metabolism Assessment • DetoxiGenomic™ Profile Dietary and therapeutic considerations: Reduce fat intake; increase vegetable intake (beta-sitosterol); increase dietary fiber (insoluble fiber) Probiotics (<i>Lactobacillus reuteri</i> , <i>Lactobacillus acidophilus</i>)

Immunology Markers

Analyte, related Profiles	Result	Suspect	Consider
Eosinophil Protein X CDSA 2.0, CDSA 2.0 without Parasitology, Gut Immunology, Optional add-on with CDSA/P CDSA Digestive Function Stand alone test	Normal ≤7.0 mcg/g 1 SD ≥1.0	No active inflammation of the GI tract, successful elimination diets	1-2 SD = Results from 1-2 SD may warrant clinical correlation even though within the "normal" reference range.
	Elevated >7.0 mcg/g	Inflammation and/or tissue damage in the GI tract. This could be due to food allergy, protein sensitive enteropathy, helminthic infection, Inflammatory Bowel Disease (IBD), allergic colitis, or gastroesophageal reflux	Assess calprotectin levels Further Testing: <ul style="list-style-type: none"> • Food Antibody Assessment • Comprehensive Parasitology Profile (with add-on Macroscopic Exam for Worms) • Celiac Testing Natural therapeutics to reduce inflammation: Probiotics, fish oils, N-acetylglucosamine Anti-inflammatory agents such as the leukotriene inhibitors or TNF-alpha antagonists Elimination Diet

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Immunology Markers, continued

Analyte, related Profiles	Result	Suspect	Consider
Calprotectin CDSA 2.0, CDSA 2.0 without Parasitology, Gut Immunology, Optional add-on with CDSA/P CDSA Stand alone test	Normal <50 mcg/g	No active inflammation of the GI tract	No further action necessary
	Elevated 50-100 mcg/g	Low-grade inflammation of the GI tract is present. This could be due to post-infectious Irritable Bowel Syndrome (IBS), infection, food allergies, polyps, neoplasia, non-steroidal anti-inflammatory drugs (NSAIDs), or IBD (in remission)	Levels between 50-100 mcg/g require repeat testing in six weeks. If levels remain elevated after ruling out other etiologies, further investigative tests (endoscopic or radiographic) should be considered Further Testing: <ul style="list-style-type: none"> • Stool Culture/Microbiology • Intestinal Permeability Assessment • Food Antibody Assessment • Celiac Testing • ImmunoGenomic™ Profile • Comprehensive Parasitology Profile Therapeutic Interventions: Probiotics, fish oils, N-acetylglucosamine, rutin
	Elevated >150 mcg/g	A value above 150 mcg/g indicates significant inflammation in the gastrointestinal tract. Possible causes include: Inflammatory Bowel Disease (IBD), infection, food allergies, NSAID use, polyps, adenomas, colorectal cancer, diverticulitis	Unless source of inflammation is clear, further evaluation is recommended and may include endoscopy and/or colonoscopy Assess microbiology/parasitology Further Testing: <ul style="list-style-type: none"> • Intestinal Permeability Assessment • Food Antibody Assessment • Celiac Testing • ImmunoGenomic™ Profile • Comprehensive Parasitology Profile Therapeutic Interventions: Probiotics, fish oils, N-acetylglucosamine, rutin Anti-inflammatory agents such as the leukotriene inhibitors or TNF-alpha antagonists
Elevated >250 mcg/g	In addition to the possible causes listed for calprotectin >150 µg/g (see above): In patients with Inflammatory Bowel Disease (IBD), levels >250 indicate disease activity. Patients with IBD in remission who have levels >250 mcg/g are at high risk of relapse within one year.	In addition to the above recommendations for calprotectin >150 mcg/g, the following is suggested: Management of IBD with standard therapies, as directed by a qualified gastroenterologist when necessary Therapeutic interventions: Probiotics, fish oils, N-acetylglucosamine, rutin Anti-inflammatory agents such as the leukotriene inhibitors or TNF-alpha antagonists	
Lactoferrin CDSA/P, CDSA	Negative	No acute inflammation	No further action necessary
	Positive	Significant mucosal inflammation from bacterial or parasitic infection, diverticulitis or active Inflammatory bowel disease (IBD)	Rule out enteric infection Further Testing: <ul style="list-style-type: none"> • Calprotectin • Eosinophil protein X • Intestinal Permeability Assessment Therapeutic interventions: Probiotics, fish oils, N-acetylglucosamine, rutin Anti-inflammatory agents such as the leukotriene inhibitors or TNF-alpha antagonists

Microbiology Markers

Analyte, related Profiles	Result	Suspect	Consider
Beneficial Bacteria CDSA, CDSA 2.0, Comprehensive Parasitology Profile, Microbiology Profile, Bacteriology Profile	Within normal levels <i>Lactobacilli</i> >2+ <i>Bifidobacteria</i> >4+	Suggests healthy levels of beneficial flora	No further action necessary
	Below normal levels <i>Lactobacilli</i> <2+ <i>Bifidobacteria</i> <4+ <i>E.coli</i> <4+	Increased susceptibility to pathogenic bacterial infection, increased toxic enzyme exposure, increased risk for mucosal barrier defects and immune dysregulation	Assess SCFAs, beta-glucuronidase, pH and mycology Further Testing: <ul style="list-style-type: none"> • Intestinal Permeability Assessment • Gut Mucosal Assessment Therapeutic Interventions: Probiotics (supplementation with <i>Lactobacilli</i> and <i>Bifidobacteria</i> to help balance deficient flora)
Additional Bacteria CDSA/P, CDSA, CDSA without Parasitology, CDSA 2.0, Comprehensive Parasitology Profile, Microbiology Profile, Bacteriology Profile	Non-Pathogenic (NP)	Organisms that constitute normal aerobic flora or commensal flora, and have not been recognized as etiological agents of disease	No further action necessary
	Potential pathogen (PP)	Organisms that have the potential in certain hosts to be opportunistic pathogens	If clinical symptoms persist in the absence of any other clearly defined infection, treatment may be considered Refer to the Pathogenic Organism Chart** for therapeutic recommendations
	Pathogen (P)	Organisms that have the potential in certain hosts to be opportunistic pathogens	Refer to the Pathogenic Organism Chart** for therapeutic recommendations
Mycology CDSA/P, CDSA, CDSA without Parasitology, CDSA 2.0, Comprehensive Parasitology Profile, Microbiology Profile, Anti-Candida Antibody, Candida Antibody, Candida Intensive Culture, Yeast Culture	Candida species	Organisms that may be involved in gastrointestinal symptoms	Further Testing: <ul style="list-style-type: none"> • Intestinal Permeability Assessment • Gut Mucosal Assessment • Anti-Candida Antibody Refer to the Pathogenic Organism Chart** for clinical significance and therapeutic recommendations
	Yeast, not Candida (includes <i>Cryptococcus</i> , <i>Geotrichum</i> , and <i>Rhodotorula</i> species)	Rare, opportunistic organisms usually isolated only in immunocompromised hosts	Further Testing: <ul style="list-style-type: none"> • Intestinal Permeability Assessment Refer to the Pathogenic Organism Chart** for clinical significance and therapeutic recommendations**

* Refer to website www.gdx.com for educational documents

Microbiology Markers, continued

Analyte, related Profiles	Result	Suspect	Consider
H. pylori Stool Antigen <i>Optional add-on with these tests:</i> CDSA/P, CDSA, CDSA 2.0, CDSA 2.0 without Parasitology Digestive Function Stand alone test	Negative	No active <i>Helicobacter pylori</i> infection, or successful eradication (after at least 7 days of treatment)	No further action necessary
	Positive	Active <i>Helicobacter pylori</i> infection or partially treated <i>H. pylori</i> infection (antibiotic failure/resistant strain)	Therapeutic Interventions: Triple or quadruple therapy - see the HpSA white paper**. Retest patient in 7-14 days for test-of-cure, particularly if symptoms continue Consider addition of probiotics to improve treatment tolerance & effectiveness Consider mastic gum and/or zinc carnosine as alternative/adjunctive therapy Refer to the Pathogenic Organism Chart** for clinical significance and therapeutic recommendations
Analyte, related Profiles	Result	Suspect	Consider
Shiga Toxin E.coli (STEC) <i>Optional add-on with these tests:</i> CDSA/P, CDSA, CDSA 2.0, CDSA 2.0 without Parasitology, Comprehensive Parasitology Profile Microbiology, Bacteriology Stand alone test	Negative	No active infection	No further action necessary
	Positive	Active STEC infection	Antibiotics are NOT effective (unless etiological role in cystitis or pyelonephritis) Probiotics may help to prevent infection, but cannot nullify the effects of STEC once it has attached and released its toxin Refer to the Pathogenic Organism Chart** for clinical significance and therapeutic recommendations
Analyte, related Profiles	Result	Suspect	Consider
Campylobacter specific antigen <i>Optional add-on with these tests:</i> CDSA/P CDSA CDSA 2.0, CDSA 2.0 without Parasitology, Comprehensive Parasitology Profile Microbiology, Bacteriology Stand alone test	Negative	No active infection	No further action necessary
	Positive	Active <i>Campylobacter</i> infection	Infections are usually self-limiting and do not require antibiotic therapy. Patients with persistent diarrhea secondary to <i>Campylobacter</i> infection require antibiotic therapy (erythromycin or ciprofloxacin are the preferred drugs of choice). Activated charcoal may decrease symptoms Refer to the Pathogenic Organism Chart** for clinical significance and therapeutic recommendations

Analyte, related Profiles	Result	Suspect	Consider
Clostridium difficile toxins A & B Optional add-on with these tests: CDSA/P, CDSA, CDSA 2.0, CDSA 2.0 without Parasitology Stand alone test	Negative	Absence of both toxins A and B, or an extremely low toxin level below the assay's detection limit	No further action necessary
	Positive	Active <i>Clostridium difficile</i> infection	Oral vancomycin or metronidazole are the drugs of choice for severe infection, though disease relapse can occur Probiotics such as <i>Lactobacillus rhamnosus</i> (GG), <i>Bifidobacterium bifidum</i> , and <i>Saccharomyces boulardii</i> may help prevent infection and/or the recurrence of <i>C.difficile</i> Probiotics will NOT nullify the effects of <i>C.difficile</i> once the toxins have been released and the mucosal barrier has been compromised Refer to the Pathogenic Organism Chart** for clinical significance and therapeutic recommendations

Analyte, related Profiles	Result	Suspect	Consider
Occult blood CDSA/P, CDSA, Optional add-on with these tests: CDSA 2.0, CDSA 2.0 without Parasitology, Digestive Function	Negative	No hemoglobin detected in the stool	Rule out ingestion of vitamin C above 250 mg/day (inactivates test)
	Positive	Suggests abnormal amounts of hemoglobin from excessive blood loss. Suspect ulcers, polyps, diverticulitis or colorectal cancer	Rule out false positive results from non-intestinal sources of bleeding (hemorrhoids, menstruation, hematuria) or use of rectal suppositories, oral medications, including aspirin and corticosteroids Repeat positive results should be followed up with other diagnostic procedures such as protosigmoidoscopic examination, full colonoscopy, barium enema, or other examinations

Analyte, related Profiles	Result	Suspect	Consider
Parasitology CDSA/P, CDSA 2.0, Comprehensive Parasitology Profile, Parasitology Profile	Positive	Parasite infection and Dysbiosis	Assess calprotectin, EPX and/or Lactoferrin Further Testing: • Intestinal Permeability Assessment Refer to the Parasitic Organism Chart** for clinical significance and therapeutic recommendations

This information is for the sole use of a licensed health care practitioner and is for educational purposes only. It is not meant for use as diagnostic information. All claims submitted to Medicare/Medicaid for Genova Diagnostics laboratory services must be for tests that are medically necessary. "Medically necessary" is defined as a test or procedure that is reasonable and necessary for the diagnosis or treatment of illness or injury or to improve the functioning of a malformed body member. Consequently, tests performed for screening purposes will not be reimbursed by the Medicare program.



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