LABTESTS**DIRECT**
MAKING HEALTH ONLINE EASY

PATIENT FIRST NAME :

PATIENT SURNAME:

DATE OF BIRTH: GENDER:

ADDRESS:

Microbiome Screen

MACROSCOPIC DESCRIPTION

	Result	Range	Markers
Stool Colour	**Brown**	Brown	**Colour** - Brown is the colour of normal stool. Other colours may indicate abnormal GIT conditions.
Stool Form	**Unformed**	Formed	**Form** -A formed stool is considered normal. Variations to this may indicate abnormal GIT conditions.
Mucous	**+**	< +	**Mucous** - Mucous production may indcate the presence of an infection, inflammation or malignancy.
Occult Blood	**+**	< +	**Occult Blood**- The presence of blood in the stool may indicate possible GIT ulcer, and must always be investigated immediately.

Macroscopy Comment

BROWN coloured stool is considered normal in appearance.

UNFORMED/LIQUID stools may indicate the presence of infection and/or inflammation.
Consider dysbiosis, food sensitivity, high dose vitamin C and magnesium, infection, intestinal permeability, laxative use, malabsorption, maldigestion, stress. Other causes: bacterial, fungal, viral and other parasitic infections.
Treatment:
• Investigate and treat possible underlying cause.
• Assess other CDSA markers such as pH, pancreatic elastase 1 & microbiology markers."

MUCOUS PRESENT:
The presence of mucous (or pus), which are normally absent, can indicate Irritable Bowel Syndrome, intestinal wall inflammation (from infection), diverticulitis or other intestinal abscess.
Treatment:
• Investigate and treat possible underlying cause.
• Assess other CDSA markers such as calprotectin, M2PK & microbiology markers.

BLOOD PRESENT: Consider blood vessel injury, inflammation, infection, ulceration, hemorrhoids, severe constipation & other injury.
Treatment:
• Investigate the cause of bleeding using other diagnostic tools such as endoscopy
• Assess other CDSA markers such as calprotectin, H. pylori, M2PK & microbiology markers.

MICROSCOPIC DESCRIPTION

	Result	Range	Markers
RBCs (Micro)	+	< +	**RBC(Micro)** - The presence of RBCs in the stool may indicate the presence of an infection, inflammation or haemorrhage.
WBCs (Micro)	1	< 10	**WBC(Micro)** - The presence of WBCs in the stool may indicate the presence of an infection, inflammation or haemorrhage.
Food Remnants	+	< ++	**Food Remnants** - The presence of food remnants may indicate maldigestion.
Fat Globules	+	< +	**Fat Globules** -The presence of fat globules may indicate fat maldigestion.
Starch	NEG	< +	**Starch** - The presence of starch grains may indicate carbohydrate maldigestion.
Meat Fibres	NEG	< +	**Meat Fibres** - The presence of meat fibres may indicate maldigestion from gastric hypoacidity or diminished pancreatic output.
Vegetable Fibres	+	< ++	**Vegetable Fibres** - The presence of vegetable fibres may indicate maldigestion from gastric hypoacidity or diminished pancreatic output.

Microscopy Comment

RED BLOOD CELLS DETECTED: Consider blood vessel injury, inflammation, infection, ulceration, hemorrhoids, severe constipation & other injury.
Treatment:
• Investigate the cause of bleeding using other diagnostic tools such as endoscopy
• Assess other CDSA markers such as calprotectin, H. pylori, M2PK & microbiology markers.

FAT GLOBULES PRESENT:
The presence of fat globules in faeces is an indirect indicator of incomplete fat digestion.
Consider high dietary fat intake, cholestasis, malabsorption & digestion (diarrhoea, pancreatic or bile salt insufficiency), intestinal dysbiosis, parasites, NSAIDs use, short bowel syndrome, whipples disease, Crohn's disease, food allergies & sensitivities.
Treatment:
• Prebiotic and probiotic supplementation
• Supplement hydrochloride, digestive enzymes or other digestive aids
• Investigate underlying causes
• Investigate food sensitivities and allergies
• Remove potential irritants
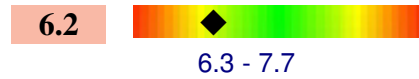• Assess other CDSA markers such as pancreatic elastase 1, calprotectin, & microbiology markers.

METABOLIC MARKERS

Markers

pH

6.2   6.3 - 7.7

pH - Imbalances in gut pH, will influence SCFA production and effect.

Metabolic Markers Comment

LOW pH PRESENT: High Acidity stool.
Consider bacterial overgrowth, lipid or carbohydrate malabsorption, rapid transit time, pancreatic insufficiency.
Treatment:
• Supplement digestive enzymes or other digestive aids
• Assess other CDSA markers such as fat globules, food remnants, transglutaminase IgA & microbiology markers.
• Investigate causes of malabsorption or diarrhoea.

BENEFICIAL BACTERIA

	Result	Range
Bifidobacteria	++++	2 - 4 +
Lactobacilli	+	2 - 4 +
Eschericia coli	++++	2 - 4 +
Enterococci	+	1 - 2 +

COMMENTS:
Significant numbers of Lactobacilli, Bifidobacteria and E coli are normally present in the healthy gut: Lactobacilli and Bifidobacteria, in particular, are essential for gut health because they contribute to 1) the inhibition of gut pathogens and carcinogens. 2) the control of intetinal pH, 3) the reduction of cholesterol, 4) the synthesis of vitamins and disaccharidase enzymes.

OPPORTUNISTIC AND DYSBIOTIC BACTERIA

	Result	Range
Klebsiella	++++	< +++
Citrobacter	NEG	< +++
Pseudomonas	++++	< +++
Proteus	NEG	< +++
Campylobacter	NEG	< +
Salmonella	NEG	< +
Streptococcus	++	< +++
Yersinia	NEG	< +
Other Bacteria.	++	< +++

COMMENTS: Commensal bacteria are usually neither pathogenic nor beneficial to the host GI tract. Imbalances can occur when there are insufficient levels of beneficial bacteria and increased levels of commensal bacteria. Certain commensal bacteria are reported as dysbiotic at higher levels. Dysbiotic bacteria consist of known pathogenic bacteria and those that have the potential to cause disease in the GI tract. A detailed explanation of bacteria that may be present can be found in the Pathogen Summary at the end of this report.

YEASTS

	Result	Range
Candida albicans	++	< +
Geotrichum spp	NEG	< +
Rhodotorula spp	NEG	< +
Other Yeasts	NEG	< +

COMMENTS: Yeast may normally be present in small quantities in the skin, mouth, and intestine. A detailed explanation of yeast that may be present can be found in the Pathogen Summary at the end of this report.

PARASITES

	Result	Range
Blastocystis Hominis	+	< +
Dientamoeba fragilis	+	< +
Cryptosporidium	NEG	< +
Giardia lamblia	NEG	< +
Entamoeba Histolytica	NEG	< +
Other Parasites	NEG	< +

COMMENTS: Parasites are organisms that are not present in a normal/healthy GIT. A detailed explanation of parasites that may be present can be found in the Pathogen Summary at the end of this report.

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ANTIBIOTIC SENSITIVITIES and NATURAL INHIBITORS

	Klebsiella pneumoniae	Pseudomonas aeruginosa
Antibiotics	Susceptible	Susceptible
Ampicillin	NO	NO
Augmentin	NO	NO
Ciprofloxacin	YES	YES
Norfloxacin	YES	NO
Meropenem	YES	NO
Cephalothin	YES	YES
Gentamycin.	NO	NO
Trimethoprim/Sulpha	YES	NO
Erythromycin	NO	NO
Penicillin.	NO	NO
Inhibitors	Inhibition %	Inhibition %
Berberine	60%	60%
Black Walnut	80%	60%
Caprylic Acid	100%	80%
Citrus Seed	80%	60%
Coptis	60%	60%
Garlic-	80%	80%
Golden seal	100%	100%
Oregano	80%	60%

LEGEND

Low Inhibition   High Inhibition

0	20	40	60	80	100

YEAST - SENSITIVITIES and NATURAL ANTIFUNGALS

Candida albicans

Antifungals

Inhibition

Fluconazole	<=0.5=S
Voriconazole	<=0.12=S
Itraconazole	

INHIBITION CATEGORY

R	Resistant	This category indicates that the organism is not inhibited by obtainable levels of the pharmaceutical agent
I	Intermediate	This category indicates where the minimum inhibiition concentrations (MIC) approach obtainable pharmaceutical agent levels and for which response rates may be lower than for susceptible isolates
SDD	Susceptible, Dose Dependent	This category indicates that clinical efficay is achieved when higher than normal dosage of a drug is used to achieve maximal concentrations
S	Susceptible	This category indicates that the organisms are inhibited by the usual achievable concentration of the agent
NI	No Interpretative Guidelines	This category indicates that there are no established guidelines for MIC interpreatation for these organisams

Non-absorbed Antifungals

Inhibition %

Nystatin	60%

Natural Antifungals

Inhibition %

Berberine.	60%
Black Walnut.	60%
Citrus Seed.	60%
Coptis.	60%
Garlic	80%
Golden seal.	80%
Oregano.	80%

LEGEND

Low Inhibition   High Inhibition

0	20	40	60	80	100

PATHOGEN SUMMARY

OTHER BACTERIA PRESENT:

Organism	Result	Range	Classification

The following group of organisms are deemed commensal, being neither beneficial or pathogenic. Where present, often inadequate levels of beneficial bacteria are also noted. These organisms may become dysbiotic at high levels where treatment may become necessary.

Organism	Result	Range	Classification
Bacillus species	1+	0 – 3+	Non-Pathogen
Enterococcus faecalis	2+	0 – 3+	Non-Pathogen
Enterococcus faecium	2+	0 – 3+	Non-Pathogen
Streptococcus species	1+	0 – 3+	Non-Pathogen
Klebsiella pneumoniae	4+ * H	0 – 3+	POSSIBLE Pathogen
Pseudomonas aeruginosa	4+ * H	0 – 3+	POSSIBLE Pathogen

OTHER YEASTS PRESENT:

Organism	Result	Range	Classification
Candida albicans	2+ * H	0 – 1+	POSSIBLE Pathogen

OTHER PARASITES PRESENT:

Organism	Result	Range	Classification
Blastocystis hominis	1+ * H	<1+	PATHOGEN
Dientamoeba fragilis	1+ * H	<1+	PATHOGEN

BACILLUS SPECIES:

Bacillus species are spore forming, gram-positive rods belonging to the Bacillaceae family. There are currently 50 valid species within the genus.

Sources:

Meat dishes are a common source of infection in other species of Bacillus such as B. subtilis and B. licheniformis.

Pathogenicity:

As yet, no toxins or other virulence factors have been identified in association with the symptoms that accompany non-B. cereus species.

Symptoms:

B. licheniformis and B. subtilis are associated with food-borne diarrheal illness.

Treatment:

B. species is almost always susceptible to clindamycin, erythromycin and vancomycin.

ENTEROCOCCUS:

Description:

Enterococcus species are gram-positive bacterium that are part of normal flora in the human gut. It can however be implicated in a variety of infections of which urinary tract infections are the most common. These infections can be exceptionally difficult to treat due to the genus exhibiting antibiotic resistance.

Sources:

Enterococcus infections spread from person to person through poor hygiene. Because these bacteria are found in faeces, people can transmit the infection if they don't wash their hands after using the bathroom. The bacteria can get into food or onto common touched surfaces.

Treatment:

Treatment of Enterococcus species in gut flora may not be necessary or recommended. However, overgrowth of this genus may be implicated in other infections such as urinary tract

infections. Enterococci are challenging to treat due their drug-resistant mechanisms. Ampicillin is the preferred antibiotic used to treat enterococci infections if required.

STREPTOCOCCUS:

Description:
Streptococcus is a common isolate from gut flora. With the exception of very rare cases, streptococcus species are not implicated in gastric pathogenesis. However, there has been correlations with the presence of streptococcus pyogenes in patients who have, or have recently had scarlet fever. Streptococcus species are also implicated in urinary tract infections and faecal flora are the common source of contamination for urinary tract infections.

Sources:
Recent infections with streptococcus pyogenes or scarlet fever can be linked to the presence of this species in faeces.

Treatment:
Treatment of streptococcus in gut flora is not always recommended. A practitioner may take into consideration a range of patient factors and symptoms to determine if treatment is necessary.

KLEBSIELLA:

Sources:
Isolated from foods and environmental sources.
Klebsiella appears to thrive in individuals on a high starch diet.
Avoiding carbohydrates such as rice, potatoes, flour products and sugary foods reduces the amount of Klebsiella in the gut

Pathogenicity:
Part of the normal GI flora in small numbers, but can be an opportunistic pathogen.
Klebsiella is capable of translocating from the gut when in high numbers.
Certain strains of K. oxytoca have demonstrated cytotoxin production.

Symptoms:
K. pneumoniae and K. oxytoca have been associated with diarrhea in humans.
Cytotoxin-producing strains are associated with acute hemorrhagic enterocolitis.
Increased colonization of Klebsiella in the stool has been found in HLA-B27 + AS patients.

Treatment:
Currently, standard texts provide no specific antimicrobial guidelines for GI overgrowth of Klebsiella .
Third generation cephalosporins and fluroquinolones are the recommended antimicrobial agents for extra-intestinal sites.

Other Herbal antimicrobials include:
Lemon and clove, Burr marigold, Thyme, Licorice, euphobia, cordyceps.

PSEUDOMONAS SPECIES:

Description:
Pseudomonas is found in water and soil as well as fruits and vegetables. Bottled water can be a common source of infection. Because the organism is able to survive aqueous environments, it is an important nosocomial pathogen.
Pseudomonas can also be found on a number of surfaces and in aqueous solutions.

Pathogenicity:
Pseudomonas is considered an opportunistic pathogen.

Symptoms:
Associated with diarrhoeal infection, particularly in the immunocompromised host.

Treatment:
Ciprofloxacin is recommended for the treatment of Pseudomonas induced antibiotic-associated colitis. Pseudomonas is usually susceptible to antipseudomonal penicillins, aminoglycosides, carbapenems, 3rd generation cephalosporins and gentamycin.

Other Herbal antimicrobials include:
Andrographis, Tea tree, Prunus armeniaca, Prunella vulgaris, Nelumbo nucifera, Panax notoginseng root, Panax notoginseng flower, Punica granatum, Areca catechu and Imperata cylindrical.

CANDIDA
Sources:
Most sources of Candida infection are thought to be of endogenous origin.While yeast are ubiquitous in the environment and are found on fruits, vegetables and other plant materials, contamination from external sources is linked to patients and health care workers.

Pathogenicity:
A normal inhabitant of the GI tract. May become an opportunistic pathogen after disruption of the mucosal barrier, imbalance of the normal intestinal flora and/or impaired immunity. Risk factors for colonization include: Antibiotics, corticosteroids, antacids, H2 blockers, oral contraceptives, irradiation, GI surgery, Diabetes mellitus, burns, T cell dysfunction, chronic stress and chronic renal disease.

Symptoms:
The most common symptom attributable to non-invasive yeast overgrowth is diarrhea. Symptoms of chronic candidiasis affect four main areas of the body.
   1. Intestinal system – symptoms include: diarrhea, constipation, abdominal discomfort, distention, flatulence and rectal itching.
   2. Genital Urinary system – symptoms include: menstrual complaints, vaginitis, cystitis and urethritis.
   3. Nervous system – symptoms include: severe depression, extreme irritability, inability to concentrate, memory lapses and headaches.
   4. Immune system – symptoms include urticaria, hayfever, asthma, and external otitis.
   Sensitivities to tobacco, perfumes, diesel fumes and other chemicals.

Treatment:
Currently, standard texts provide no specific antifungal guidelines for GI overgrowth of Candida.
Oral azoles have been recommended for extra intestinal infections.
Susceptibility testing is advised due to increasing drug resistance.

BLASTOCYSTIS HOMINIS:
B. hominis has recently been reclassified as a protozoan, of which there are thought to be four separate serologic groups.

Sources:
This organism is transmitted via the fecal-oral route or from contaminated food or water. Prevention can be enhanced by improving personal hygiene and sanitary conditions.

Pathogenicity:
When this organism is present in the absence of any other parasites, enteric organisms or viruses, it may be considered the etiological agent of disease.

Symptoms:
Symptoms can include: diarrhea, cramps, nausea, fever, vomiting and abdominal pain. B. hominis has been associated with irritable bowel syndrome, infective arthritis and intestinal obstruction.

Treatment:
Currently, Metronidazole (Flagyl) is considered the most effective drug (750 mg tid x 10 days).

Iodoquinol (Yodoxin) is also an effective medication (650 mg tid x 20 days).
Recommended therapy can also eliminate G. lamblia, E. histolytica and D. fragilis, all of
which may be concomitant undetected pathogens and part of patient symptomology.

DIENTAMOEBA FRAGILIS:
It is closely related to Histomonas and Trichomonas species. D. fragilis is known to cause
non-invasive diarrheal illness in humans.90% of children are symptomatic, whereas only
15-20% of adults are. The most common symptoms associated with D. fragilis are intermittent
diarrhea, fatigue, abdominal pain, fatigue, nausea, anorexia, malaise and unexplained
eosinophilia. Diarrhea is predominately seen during the first 1-2 weeks of infection and
abdominal pain may persist for 1-2 months.

Treatment:
Iodoquinol (650 mg tid x 20 days) or Tetracycline (500 mg qid x 10 days) or Metronidazole
(500-750 mg tid x 10 days) have been used to treat D. fragilis. Another alternative is
Paromomycin (500 mg tid x 7 days).

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The Four "R" Treatment Protocol

REMOVE	Using a course of antimicrobial, antibacterial, antiviral or anti parasitic therapies in cases where organisms are present. It may also be necessary to remove offending foods, gluten, or medication that may be acting as antagonists. Consider testing IgG96 foods as a tool for removing offending foods.	ANTIMICROBIAL	Oil of oregano, berberine, caprylic acid
		ANTIBACTERIAL	Liquorice, zinc carnosine, mastic gum, tribulus, berberine, black walnut, caprylic acid, oil of oregano
		ANTIFUNGAL	Oil of oregano, caprylic acid, berberine, black walnut
		ANTIPARASITIC	Artemesia, black walnut, berberine, oil of oregano
		ANTIVIRAL	Cat's claw, berberine, echinacea, vitamin C, vitamin D3, zinc, reishi mushrooms
		BIOFILM	Oil of oregano, protease
REPLACE	In cases of maldigestion or malabsorption, it may be necessary to restore proper digestion by supplementing with digestive enzymes.	DIGESTIVE SUPPORT	Betaine hydrochloride, tilactase, amylase, lipase, protease, apple cider vinegar, herbal bitters
REINOCULATE	Recolonisation with healthy, beneficial bacteria. Supplementation with probiotics, along with the use of prebiotics helps re-establish the proper microbial balance.	PREBIOTICS	Slippery elm, pectin, larch arabinogalactans
		PROBIOTICS	Bifidobacterium animalis sup lactise, lactobacillus acidophilus, lactobacillus plantarum, lactobacillus casei, bifidobacterium breve, bifidobacterium bifidum, bifidobacterium longum, lactobacillus salivarius ssp salivarius, lactobacillus paracasei, lactobacillus rhamnosus, Saccaromyces boulardii
REPAIR & REBALANCE	Restore the integrity of the gut mucosa by giving support to healthy mucosal cells, as well as immune support. Address whole body health and lifestyle factors so as to prevent future GI dysfunction.	INTESTINAL MUCOSA IMMUNE SUPPORT	Saccaromyces boulardii, lauric acid
		INTESTINAL BARRIER REPAIR	L-Glutamine, aloe vera, liquorice, marshmallow root, okra, quercetin, slippery elm, zinc carnosine, Saccaromyces boulardii, omega 3 essential fatty acids, B vitamins
		SUPPORT CONSIDERATION	Sleep, diet, exercise, and stress management