GI-MAP™ Interpretive Guide

Dr Oliver Frey, MD MRCGP

Private GP in Suffolk with special interest in Thyroid Health

Contents

About Dr Frey

Introduction
- Microbiology and DNA Analysis
- Target Analytes
- Pathogens
  - Clostridium difficile (C. difficile or C. diff)
  - Escherichia coli
  - Salmonella
    - Treatment
  - Yersinia enterocolitica
- Parasitic Pathogens
  - Cryptosporidium
  - Entamoeba histolytica (E. histolytica)
  - Giardia intestinalis
- Viral Pathogens
  - Adenoviruses 40 and 41
  - Norovirus
- Helicobacter pylori
  - Virulence Factors
    - BabA
    - CagA
    - Cag PAI
    - DupA
    - IceA
    - OipA
    - Vacuolating toxin (vacA)
- NORMAL/ COMMENSAL BACTERIA
  - Bacteroides fragilis
  - Bifidobacteria and Lactobacillus
  - Clostridium spp.
    - Clostridium Species and Autism
  - Enterobacter spp.
- Phyla Microbiota

Therapeutic Options for Abnormally Low Commensal Bacterial Findings

Opportunistic Bacteria or Overgrowth Bacteria

Gastrointestinal Bacteria as Potential Autoimmune Triggers
- Molecular Mimicry
  - Klebsiella species
  - Prevotella copri

Fungal Organisms

Viruses
- Cytomegalovirus
  - Epidemiology
  - Clinical Implications
  - Therapeutic Options and Considerations
- Epstein Barr Virus
  - Epidemiology
  - Clinical Implications
  - Therapeutic Options and Considerations

Opportunistic Parasites
- Blastocystis hominis
- Chilomastix mesnili
- Cyclospora cayetanensis
  - Treatment
  - Conventional Treatment
  - Natural Therapy
  - Control measures to limit spread of parasites include the following:

WORMS
- Ancylostoma duodenale and Necator americanus (Hookworms)
  - Epidemiology
  - Clinical Implications
  - Therapeutic Options and Considerations
- Ascaris lumbricoides (Roundworm)
  - Epidemiology
  - Clinical Implications
  - Therapeutic Options and Considerations
- Necator Americanus

- Trichuris trichiura (Whipworm)
  - Epidemiology
  - Clinical Implications
  - Therapeutic Options and Considerations
- Taenia spp. (Tapeworm)
- Epidemiology
  - Clinical Implications
  - Therapeutic Options and Considerations

Intestinal Health Markers
- Digestion
  - Pancreatic elastase 1
    - Causes of Low Elastase 1:
    - Common Approaches for Addressing Low Pancreatic Digestive Enzyme Levels:
  - Steatocrit
- GI Markers
  - Beta-glucuronidase
  - Occult Blood Fecal - FIT
    - Possible Causes of Positive Occult Blood:
- Immune Response
  - Secretory IgA
    - Therapeutic Approaches for Low SIgA Levels:
    - Therapeutic Approaches for High SIgA Levels:
  - Anti-gliadin antibodies
- Inflammation
  - Calprotectin

Zonulin

Drug Resistance Genes
- Helicobacter pylori

About CountryHealth

About Dr Frey

Dr. Frey has dedicated his life to helping people take control of their health. His aim is to help his clients to learn how to become healthier, and take or regain control of their health.

Over 25 years of studying and practice in a variety of fields in medicine in Germany, England, Estonia and Switzerland give Dr Frey a fair bit of experience.

He first began treating patients in Germany in 1992 in cardio-thoracic surgery, followed by abdominal and vascular surgery, orthopaedics and trauma in state-run hospitals and a private hospital. In order to expand his skills he moved to the UK in 1997 where he spent three years training as a general medical practitioner, further specialising in diabetes care.

After several years, Dr. Frey took time out to reflect – moving to Estonia where he joined a spa hotel as strategic development director and chief physician. He became a life and health coach and was featured on Estonian TV. Dr Frey began exploring the fascinating field of functional medicine and developed screening tests and treatment packages for the hotel clients.

Soon he opened his first private practice, exploring a different way to offer healthcare. After modifying his patient's diet, he saw drastic – and often permanent – improvements in their health, this despite years of unsuccessful treatment by specialists.

After a short period in Switzerland as single-handed GP he moved back to England. In addition to his private work he supports an outstandingly rated NHS practice in Suffolk.

On his way he collected an MD “magna cum laude”, membership of the Royal College of General Practitioners (MRCGP), a Diploma in Diabetes Care from Warwick, skills in acupuncture and neural therapy, and even life coaching, homeopathy, Reiki and EFT.

Dr Frey sees patients in his private practice in Ipswich. He has a special interest in thyroid health.

Contact details:

- www CountryHealth.co.uk
- Email reception@countryhealth.co.uk
- Practice tel: 01473 218 373

Introduction

Microbiology and DNA Analysis

In the last few decades, DNA analysis has transformed the field of microbiology. We become more and more aware of the health benefits or disease risks brought about by the microorganisms that inhabit the human body - the microbiome. Culture techniques, previously the standard, left up to 50% of bacterial species virtually invisible.

With DNA analysis we can now identify tremendous numbers of previously unknown organisms. Anaerobic bacteria make up a large part of the human microbiome and can be opportunistic and cause illness.

The Gastrointestinal Microbial Assay Plus (GI-MAP) was designed to assess a patient's microbiome from a single stool sample, with particular attention to microbes that may be disturbing normal microbial balance and may contribute to disorders in the gastrointestinal (GI) flora or illness.

The panel is a comprehensive collection of microbial targets as well as immune and digestive markers. It screens for pathogenic bacteria, commensal bacteria, opportunistic pathogens, fungi, viruses, and parasites.

The GI-MAP measures pathogenic organisms that can cause hospital-acquired infections (HAI) such as C. difficile or norovirus, foodborne illness such as E.coli or Salmonella, and common causes of diarrhea such as Campylobacter, Shigella, and rotavirus A.

This panel measures viral causes of gastroenteritis, unavailable by other common stool tests. It measures parasites such as Cryptosporidium, Giardia, and Entamoeba histolytica. The GI-MAP analyzes Helicobacter pylori and its virulence factors. It can detect opportunistic pathogens such as Pseudomonas aeruginosa, Klebsiella pneumoniae, Yersinia enterocolitica, and Proteus mirabilis, associated with autoimmune molecular mimicry.

It includes a panel of single-celled, amebic parasites such as Blastocystis hominis, Dientamoeba fragilis, and Entamoeba coli. Fungal organisms are measured by the GI-MAP such as Candida, Geotrichum, and Microsporidia, with the latter being a new addition to DNA stool analysis.

Finally, the GI-MAP measures standard markers of immunity, inflammation and digestion including calprotectin, secretory immunoglobulin A (sIgA), anti-gliadin antibody, and pancreatic elastase. [1]

Target Analytes

The human gastrointestinal microbiome houses trillions of bacteria and research shows that these microorganisms are essential for human metabolism[2], nutrition, immune function[3], and resistance to infection[4].

Over 500 different species of microorganisms from 30 different genera have been identified from the human gut. But in any one person, there are 100 million- 1 trillion microorganisms per gram of fecal content. Most microbes in the human gut are believed to be beneficial or commensal. There are microbes that colonize many people but only become pathogenic in certain situations (opportunistic pathogens). Finally, there are pathogens that are widely recognized to cause disease in the human host.

Although they are ubiquitous, pathogenic bacteria do not cause illness in all people. This is because commensal gastrointestinal flora can protect the host from infection. When gut microflora protects the intestines from pathogens and harmful microorganisms it is called, “colonization resistance.”

Animal models show that when normal gut microflora are lacking, the host is more susceptible to GI infections with Salmonella. Similarly, after antibiotic treatment there is increased risk of pathogenic infections. On the other hand, commensal bacteria such as Lactobacillus and Bifidobacterium can prevent gastrointestinal infection.

Colonization resistance explains why most pathogenic bacteria fail to cause disease in healthy subjects [5]. Commensal bacteria naturally inhabit the human gastrointestinal tract and do not cause disease.

[1] Fasano A. Intestinal permeability and its regulation by zonulin: diagnostic and therapeutic implications. Clinical gastroenterology and hepatology : the official clinical practice journal of the American Gastroenterological Association. 2012;10(10):1096-1100
[2] Ley RE, Turnbaugh PJ, Klein S, Gordon JI. Microbial ecology: human gut microbes associated with obesity. Nature. 2006;444(7122):1022-1023.
[3] Palva A. [Intestinal microorganisms and their significance for health]. Duodecim; laaketieteellinen aikakauskirja. 2009;125(6):685-694.
[4] Kamada N, Seo SU, Chen GY, Nunez G. Role of the gut microbiota in immunity and inflammatory disease. Nature reviews. Immunology. 2013;13(5):321-335
[5] Stecher B, Hardt WD. The role of microbiota in infectious disease. Trends in microbiology. 2008;16(3):107-114

About CountryHealth

Private GP Practice with Focus on Functional Medicine

Our patients usually get in touch when they need help that the NHS cannot provide. We can advise you on symptoms, organise specialist tests that are often not available on the NHS and can also refer you privately to specialists. We want to find the root cause of your problems, not just cover the symptoms with medication.

As a private medical patient, you can expect more personal, friendly consultations and appointments at times that suit YOU.

To fully explore your concerns, we don't limit you to "one problem per 10 minute appointment". Instead our appointments take typically 30-60 minutes. Unfortunately, we cannot offer A&E services.

Our approach is different. We want to find the root cause of your problems, not just cover the symptoms with medication.

We offer a range of services to our clients to help them to Get Well and Stay Well.

- Health Screenings
- Genetic Testing
- Nutritional / Functional Therapy
- Food Intolerance Testing

To find out more, please visit our website: www.CountryHealth.co.uk

Practice:

CountryHealth
Cornwallis Chambers
23 Great Colman Street
Ipswich
IP4 2AN

Phone : 01473 218 373
Email: reception@countryhealth.co.uk