



CLINICAL CASE STUDY

Restoring Bowel Control and Reducing Nocturnal Symptoms Through Microbiome-Informed Care

For Healthcare Professionals Only

Introduction

To demonstrate the clinical utility of Microbiome Explorer™ and how it can be effectively integrated into practice, real-world case scenarios have been documented to illustrate its application and care. Below is a case managed by Alyssa Tait, Naturopath, showcasing her clinical work-up and the use of Microbiome Explorer™ in guiding patient management.

Clinical Background: Chronic Faecal Urgency with Nocturnal Symptoms

Chronic bowel dysfunction, including faecal urgency, incontinence, and nocturnal digestive symptoms, poses a considerable burden on quality of life. Contributing factors are often multifactorial and may involve both structural and functional disturbances of the gastrointestinal system. Conventional management frequently relies on symptom-suppressing medication, such as loperamide, without addressing underlying drivers.

In this case, a woman in her mid-sixties presented with longstanding faecal urgency and incontinence, along with nocturnal nausea and bloating that disrupted sleep. She was anxious about managing these symptoms during an impending overseas trip, which emphasised the need for effective and practical interventions.

Patient Presentation

Characteristic	Details
Age	Mid-60s (female)
Symptoms	Faecal urgency, occasional incontinence, nocturnal nausea and bloating disrupting sleep
Diet	Elevated LDL- and total cholesterol but lean body composition
Intervention history	Reliance on loperamide for bowel control

Microbiome Findings (Baseline)

A Microbiome Explorer – Comprehensive analysis revealed several microbiome and GI marker abnormalities likely contributing to the patient’s presentation.

Key findings included:

- **Digestive insufficiency:** pancreatic elastase markedly low (21.4 µg/mL), suggestive of pancreatic exocrine insufficiency.
- **Inflammatory drivers:** elevated trimethylamine producers and borderline high BCAA producers, and four oral species. High levels of plasma TMAO, mucin degrading species, hexa-LPS producing species, and oral species in the gut and low levels of IPA-producing species have been associated with intestinal and/or systemic inflammation³⁻⁶.
- **Inflammation and barrier dysfunction:** elevated secretory IgA⁷, faecal calprotectin, and zonulin.

Table 1. Microbiome Explorer™ Report Breakdown

Marker	Baseline Finding	Clinical Interpretation
Pancreatic elastase	<p>Ref Range: 200–408µg/ml</p> <p>20.55 720</p> <p>Low: 21.4 µg/ml</p>	Digestive enzyme insufficiency
Secretory IgA	<p>Ref Range: 500–2000µg/g</p> <p>0 10000</p> <p>High: 2044.08 µg/g</p>	Intestinal immune activation
Propionate-producing microbes	<p>Compared to healthy cohort</p> <p>AVG</p> <p>High: +2.88σ</p>	Associated with slow transit, inflammation
Butyrate-producing microbes	<p>Compared to healthy cohort</p> <p>AVG</p> <p>Borderline Low: -1.27σ</p>	Reduced anti-inflammatory capacity
Acetate-producing microbes	<p>Compared to healthy cohort</p> <p>AVG</p> <p>Low: -1.82σ</p>	Suboptimal SCFA balance
IPA-producing microbes	<p>Compared to healthy cohort</p> <p>AVG</p> <p>Low: -1.74σ</p>	Associated with intestinal and systemic inflammation
Mucin degradation	<p>Compared to healthy cohort</p> <p>AVG</p> <p>High: +1.39σ</p>	Associated with intestinal inflammation
Trimethylamine-producing microbes	<p>Compared to healthy cohort</p> <p>AVG</p> <p>High: +1.36σ</p>	Associated with systemic inflammation
Hexa-LPS producing microbes	<p>Compared to healthy cohort</p> <p>AVG</p> <p>Borderline High: +1.23σ</p>	Associated with intestinal inflammation
Hydrogen sulphide-producing microbes	<p>Compared to healthy cohort</p> <p>AVG</p> <p>Borderline High: +0.69σ</p>	
Oral species	<p>4 detected</p>	Suggests inflammation, reduced gastric secretory function or microbial translocation

Intervention

Goals of treatment included reduced faecal urgency and improved bowel control, improved digestive insufficiency, improved stool form, and reduced urgency and nocturnal nausea. Strategies were designed with practicality in mind given the patient's upcoming travel.

Intervention	Dosage	Purpose
Digestive bitters (<i>Gentiana lutea</i> 1:2 and <i>Zingiber officinale</i> 1:2 blend)	1 mL 3x/day with meals	Digestive support, reduce nausea
Oat beta-glucan	10 g PromOat equivalent 3.5 g oat beta glucan or for travel, 14 g oat powder sachets containing 3 g oat beta-glucan	Improve stool form, reduce cholesterol
Pelvic floor exercises	Daily	Improve bowel control, restore continence
Specialist referral	N/A	Further investigation for possible pancreatic exocrine insufficiency

Follow-up and Retesting

After six months, repeat Microbiome Explorer testing revealed improvements across key microbiome and GI markers:

- **Digestive function supported:** oral species decreased from four to one.
- **Inflammatory activity reduced:** secretory IgA returned to normal range, mucin degradation decreased, though hexa-LPS producers remained essentially the same.
- **Microbial ecosystem and balance improved:** diversity and richness increased, propionate producers reduced and acetate producers increased and hydrogen sulphide producers decreased, though butyrate producers remained borderline low.

Clinical Outcome

- Resolution of faecal urgency, diarrhoea, incontinence, and sensation of incomplete bowel emptying.
- Marked reduction in bloating and nocturnal nausea.
- Improved blood lipid markers: total cholesterol decreased from 6.3 to 5.6 mmol/L; LDL-C decreased from 4.5 to 4.0 mmol/L.
- Imaging showed significant pancreatic atrophy, confirming pancreatic insufficiency, and enteric-coated pancreatic enzyme replacement therapy (Creon®) was initiated.

Ongoing Management Plan

To maintain progress and address residual challenges, a longer-term plan was implemented.

Table 4: Ongoing Management Plan

Intervention	Purpose
Pancreatic enzyme replacement (Creon®)	Compensate for pancreatic insufficiency
Oat beta-glucan (4 tsp daily or in smoothies)	Maintain cholesterol and stool form
Galacto-oligosaccharides (GOS)*	Help maintain stool form, reduce hexa-LPS producers, support diversity
Diet optimisation	Gradually increase fibre intake; include kiwifruit (2/day) and legumes every second day

* Patient found it more palatable than oat beta-glucan.

Table 2. Microbiome Explorer™ Result Comparison

	Before Intervention	After Intervention
GI Health Markers	<p>Pancreatic elastase</p> <p>Ref Range: 200-408µg/ml 20.55 720</p> <p>Low: 21.4 µg/ml</p>	<p>Pancreatic elastase</p> <p>Ref Range: 200-408µg/ml 20.55 720</p> <p>Low: 36.68 µg/ml</p>
	<p>Propionate-producers</p> <p>Compared to healthy cohort AVG</p> <p>High: +2.88σ</p>	<p>Propionate-producers</p> <p>Compared to healthy cohort AVG</p> <p>Borderline High: +1.09σ</p>
	<p>Secretory IgA</p> <p>Ref Range: 500-2000µg/g 149.56 7500</p> <p>High: 2044.08 µg/g</p>	<p>Secretory IgA</p> <p>Ref Range: 500-2000µg/g 149.56 7500</p> <p>In Range: 1530.84 µg/g</p>
Diversity	<p>Butyrate-producing microbes</p> <p>Compared to healthy cohort AVG</p> <p>Borderline Low: -1.27σ</p>	<p>Butyrate-producing microbes</p> <p>Compared to healthy cohort AVG</p> <p>Low: -1.35σ</p>
	<p>Acetate-producing microbes</p> <p>Compared to healthy cohort AVG</p> <p>Low: -1.82σ</p>	<p>Acetate-producing microbes</p> <p>Compared to healthy cohort AVG</p> <p>In Range: 0.00 σ</p>
	<p>IPA-producing microbes</p> <p>Compared to healthy cohort AVG</p> <p>Low: -1.74σ</p>	<p>IPA-producing microbes</p> <p>Compared to healthy cohort AVG</p> <p>Low: -2.5σ</p>
Microbiome Markers	<p>Mucin degradation</p> <p>Compared to healthy cohort AVG</p> <p>High: +1.39σ</p>	<p>Mucin degradation</p> <p>Compared to healthy cohort AVG</p> <p>In Range: -0.97σ</p>
	<p>Trimethylamine producing microbes</p> <p>Compared to healthy cohort AVG</p> <p>High: +1.36σ</p>	<p>Trimethylamine producing microbes</p> <p>Compared to healthy cohort AVG</p> <p>Borderline High: +0.98σ</p>
	<p>Hexa-LPS producing microbes</p> <p>Compared to healthy cohort AVG</p> <p>Borderline High: +1.23σ</p>	<p>Hexa-LPS producing microbes</p> <p>Compared to healthy cohort AVG</p> <p>High: +1.29σ</p>
	<p>Hydrogen sulphide-producing microbes</p> <p>Compared to healthy cohort AVG</p> <p>Borderline High: +0.69σ</p>	<p>Hydrogen sulphide-producing microbes</p> <p>Compared to healthy cohort AVG</p> <p>In Range: -0.14σ</p>
	<p>Oral species</p> <p>4 detected</p>	<p>Oral species</p> <p>1 detected</p>

Clinical Insights

This case illustrates how Microbiome Explorer testing can:

- Identify hidden contributors to bowel dysfunction, including digestive insufficiency, imbalanced SCFA production, and possible microbial translocation.
- Guide personalised interventions that resolve symptoms while uncovering underlying pathologies.
- Work in tandem with conventional medical workup in complex cases.



Conclusion

Microbiome Explorer analysis uncovered functional digestive insufficiency and microbial imbalances in a patient with longstanding faecal urgency and nocturnal digestive symptoms. Guided by these insights, a tailored intervention resolved urgency, incontinence, and bloating, while also uncovering pancreatic atrophy requiring medical treatment. This case highlights the utility of microbiome-informed care in complex gastrointestinal presentations.

References

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