MYPERIOPROGRESS
COMPARISON OF RESULTS

ORAL DNA LABS
Innovations in Salivary Diagnostics

Sample, Report
Date Of Birth: 09/20/1980 (37 yrs)
Gender: Female
Patient Id: 789
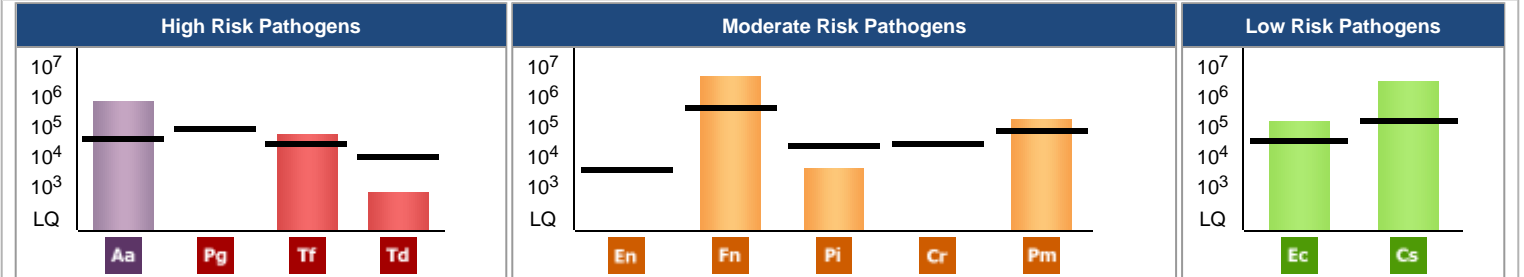Patient Location: Test Location A

Previous Test
Specimen#: 5033032170
Accession#: 201807-12481
Specimen: Oral Rinse(P)
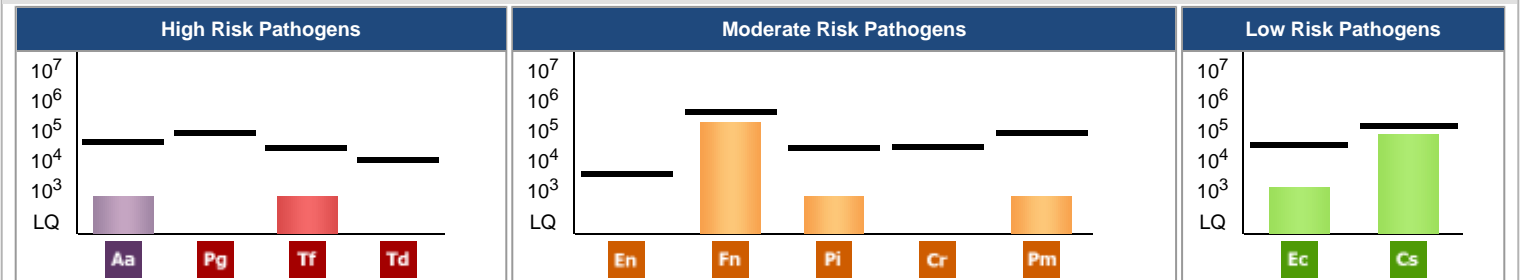Collected: 05/16/2018

Current Test
Specimen#: 5110000014
Accession#: 201807-12514
Specimen: Oral Rinse(P)
Collected: 07/23/2018

COMPARISON OF TEST RESULTS

MyPerioPath - Previous Result

High Risk Pathogens / Moderate Risk Pathogens / Low Risk Pathogens

MyPerioPath - Current Result

High Risk Pathogens / Moderate Risk Pathogens / Low Risk Pathogens

Summary of Results

Total Bacterial Load

46%
Reduction

Since patient's last test on 05/17/2018:

- Congratulations, since the last test submitted 2 months 7 days ago, the clinical management of this patient has achieved a 46% reduction in periodontal pathogen (burden) load.
- The results show a reduction of the red (Aa , Tf , Td), orange (Fn , Pi , Pm) and green (Ec , Cs) complex pathogens.
- These current results are likely associated with a decrease in both oral and systemic inflammation. Consequences of high pathogenic bacteria present for years and decades add significantly to the risk of life threatening diseases beyond the mouth.
- For most treatment protocols, the maximal reduction in pathogen (burden) load is observed when follow-up testing is performed between 6-12 weeks. This sample was collected at 9 weeks 5 days from the previous test.

Clinical Comparison	Previous 05/17/2018	Current 07/24/2018
Total # Bacteria Present	8	7
Total # Bacteria Above Threshold	6	0
Deepest Pocket	5	5
Localized Infection	☐	☐
Generalized Infection	☑	☑
Inflammation/Redness	☑	☐
Bleeding on Probing	☐	☐
Bone Loss	☐	☐
Discharge	☐	☐
Halitosis/Malodor	☐	☐

A follow-up test is recommended to monitor the effectiveness of current treatments and to determine the type and frequency of future care.

Discover the Facts...
what you may not know about oral bacteria and how it relates to overall health

Tf Successful reduction of red complex pathogens, but in particular Tf, are predictive of long term control of the disease. By contrast, no single clinical parameter is a reliable indicator of disease progression.

MYPERIOPATH®

FINAL REPORT

ORALDNA LABS — *Innovations in Salivary Diagnostics*

Sample, Report
Date Of Birth: 09/20/1980 (37 yrs)
Gender: Female
Patient Id: 987
Patient Location: Test Location A
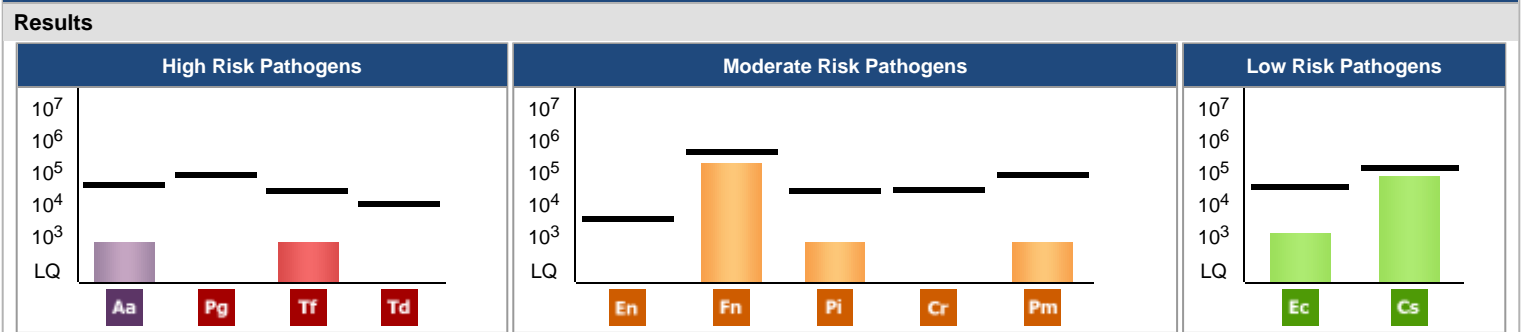
Ordering Provider
Ronald McGlennen MD
7400 Flying Cloud Drive Suite 150
Eden Prairie, MN 55344
855-123-1234

Sample Information
Specimen#: 5110000014
Accession#: 201807-12514
Specimen: Oral Rinse(P)

Collected: 07/24/2018
Received: 07/24/2018 13:07
Reported: 07/27/2018 14:48

MYPERIOPATH MOLECULAR ANALYSIS OF PERIODONTAL AND SYSTEMIC PATHOGENS

Results

High Risk Pathogens — Aa, Pg, Tf, Td
Moderate Risk Pathogens — En, Fn, Pi, Cr, Pm
Low Risk Pathogens — Ec, Cs

Legend: The result graphic (above) shows the bacterial level for each of the assayed species. The vertical axis displays bacterial genome copies/milliliter in log10. The limit of quantification (LQ) is the lowest bacteria level that can be repeatedly measured. The black lines across each colored bar are the Therapeutic Threshold.

Interpretation of Results

- This result shows a combination of 2 high risk (Aa, Tf) and 3 moderate risk (Fn, Pi, Pm) pathogens and low risk Ec, Cs each below the therapeutic threshold.
- The bacterial species Tf and/or Aa are strongly associated with chronic periodontitis, are transmissible and tissue invasive even at low amounts of these organisms. Moreover, Tf is present in 20-25% of cases of periodontitis and is often symbiotic with other pathogens such as Pg and Fn.
- The detected pathogens are also risk factors for various systemic diseases, including atherosclerosis, type 2 diabetes, arthritis, dementia and several types of cancer. Difficulty in controlling infections involving Pi has been attributed to resistance to many antibiotics, including penicillins, cephalosporins, and tetracyclines. P.intermedia cells form a biofilm in which the bacterial cells become more resistant to antibiotics.

Treatment Considerations: to be determined by the healthcare professional

- **Mechanical/Debridement:** Scaling and root planing (SRP) is a mainstay of therapy to disrupt biofilm, remove plaque and debride compromised tissue. This patient harbors a series of pathogens that may be refractory to this treatment.
- **Systemic Antibiotics:** A recommendation of systemic antibiotics is not provided for this bacterial profile. For an antibiotic treatment guide, reference - **MyPerioPath Antibiotic Options**.
- **Local Antibiotics and Chemical Hygiene:** As an adjunct to SRP, sub-antimicrobial doses of doxycycline hyclate lower collagenase activity and reduce periodontal pocket depth. Alternatively, locally delivered antimicrobial agents (LDA) including minocycline microspheres, doxycycline hyclate in an absorbable polymer, or chlorhexidine in a gelatin matrix have been shown to decrease pocket depth modestly.
- **Pocket or Field Decontamination:** Laser decontamination as an adjunct therapy to SRP may be beneficial in reducing probing depth and bacterial loads. The consideration of using lasers as an adjunct to SRP is dependent on type of laser used and the particular protocol.
- **Chemical and Gaseous antiseptics:** Chlorhexidine or Povidine iodine rinses can reduce periodontal pocket depth. Prescription tray application of peroxide gel, as an adjunct to frequent periodontal maintenance appointments for refractory patients, demonstrated significant reductions in bleeding on probing. Ozone is a volatile antiseptic that can disrupt microbial membranes.
- **Probiotics and Prebiotics:** Probiotics are live, beneficial bacteria, typically administered as a food or dietary supplement. Prebiotics are non-digestible ingredients that promote growth of commensal bacteria. Research shows that prebiotics and probiotics control the growth of pathogens and reverse tissue destruction caused by periodontitis.
- **Periodontal Surgery:** When clinical signs & symptoms of a periodontal infection persist, or periodontal anatomy is not conducive to health, periodontal surgical evaluation and/or intervention may be indicated.
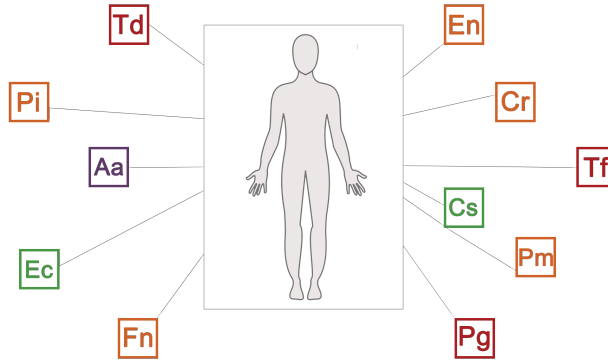
Follow up Recommendations

- ☑ Good periodontal health depends on compliance of a home care regimen as detailed by your healthcare provider. Daily brushing, flossing, as well as attention to nutrition, proper rest and cessation of smoking are essential.
- ☑ Follow-up testing between 6-12 weeks with MyPerioPath is recommended. Persistence of bleeding on probing is often indicative of unresolved infection. Retesting will identify residual or refractory bacteria. Currently there is not a cure for periodontal disease, only periods of remission.
- ☑ Assessment of a patient's level of inflammation with Celsus One is valuable in deciding the frequency of patient recall and treatment.

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MYPERIOPATH®
FINAL REPORT

Sample, Report
(ID: 987)
Date Of Birth:
09/20/1980
Gender: Female

Sample Information
Specimen#: 5110000014
Accession#: 201807-12514
Specimen: Oral Rinse(P)
Collected: 07/23/2018

ORALDNA LABS™
Innovations in Salivary Diagnostics

Clinical Considerations

Reason for Testing	Clinical	Diagnostic	Medical History
☑ Treatment Follow-up	☑ Generalized Infection	☑ Type III Moderate Periodontitis	☑ Neurologic/Memory Loss
		☑ Tooth Numbers	☑ Arthritis/Auto Immune Disease

Tooth Numbers	3	9	14	19	24	30
Pocket Depths(mm)	4	4	5	4	4	3

Systemic Effects of Oral Pathogens

Cancer

Chronic gum disease, involving Aa, Pg, Td, Tf, & Fn is a risk factor for the development of certain cancers including ones involving the pancreas, esophagus, colon, lungs, and the head and neck. Additionally, untreated gum disease is a cause of ongoing inflammation, which may promote the advancing growth of tumors.

Cardiovascular Health

Select bacteria such as Aa, Td, Tf, Pg, Pi, & Fn can leak from blood vessels in the gums and travel to the heart, where cholesterol and other lipids deposit. These bacteria can incite inflammation in arteries, and if occluded, cause a heart attack. A goal of treatment is to minimize the levels of these bacteria as much and as long as possible.

Joint and Musculoskeletal Health

The periodontal bacteria Pg, Fn & Ec are a cause of arthritis. The oral inflammation caused by these bacteria also leads to total body inflammation which, combined with changes in a person's immunity, may result in chronic joint diseases like rheumatoid arthritis.

Dementia and Brain Health

Recent medical studies point to poor oral health, and high levels of the bacteria Pg, Cr, Cs in our gums, increasing the risk of developing dementias such as Alzheimer's.
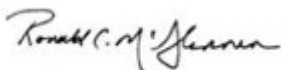
Metabolic Health

Obesity, lack of exercise and chronic gum disease involving the bacteria Aa, Td, Tf, Pg, & Fn cause chronic inflammation. Inflammation can damage the pancreas where insulin is produced, possibly leading to diabetes. Also, diabetes worsens oral health by increasing the level of harmful bacteria in the gums.

Healthy Pregnancy

Bacteria associated with gum disease, especially Aa, Tf, Pg, Fn, and Ec, are known to put a pregnancy at risk for pre-term birth, decreased birth weight and even blood infection in the placenta or newborn. Every pregnant woman should be tested for these harmful bacteria.

Methodology: Genomic DNA is extracted from the submitted sample and tested for 10 species-specific bacteria [Aa: Aggregatibacter actinomycetemcomitans, Pg: Porphyromonas gingivalis, Tf: Tannerella forsythia, Td: Treponema denticola, En: Eubacterium nodatum, Fn: Fusobacterium nucleatum/periodontium, Pi: Prevotella intermedia, Cr: Campylobacter rectus, Pm: Peptostreptococcus (Micromonas) micros, Ec: Eikenella corrodens] and 1 genus of bacteria [Cs: Capnocytophaga species (gingavalis, ochracea, sputigena)] known to cause periodontal disease. The bacteria are assayed by real-time quantitative polymerase chain reaction (qPCR). Bacterial levels are reported in log 10 copies per mL of sample (e.g. 1x10^3 = 1000 bacteria copies per mL of collection). Cross-reactivity is possible with Leptotrichia buccalis, Fusobacterium hwasooki, and Capnocytophaga granulosa. This test was developed, and its performance characteristics determined by OralDNA Labs pursuant to CLIA requirements. This test has not been cleared or approved by the U.S. Food and Drug Administration. The FDA has determined that such clearance or approval is not necessary.

Ronald C. M. Glennen

Ronald McGlennen MD, FCAP, FACMG, ABMG
Medical Director

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