

ENHANCED SURGICAL OUTCOMES START AT THE SURFACE

Assessing gland function and
structure and treating Meibomian
Gland Dysfunction (MGD) with
the Johnson & Johnson
TearScience™ product suite

Johnson & Johnson



Optimizing, maintaining and restoring ocular surface health

The Johnson & Johnson **TearScience™** product suite is a proven set of tools that allow you to accurately assess gland function and structure and effectively treat MGD.

Restoring gland function improves the lipid layer of the tear film,¹ enabling a healthier ocular surface and an improvement in ocular surface disease symptoms,^{2,3} including vision quality,⁴ post-surgical outcomes and patient satisfaction.⁵

THE MEIBOMIAN GLAND PRODUCT SUITE ENABLES SUCCESS

1 **Elevates** your status as a leader in ocular surface health, transforming patient care

2 **Optimizes** ocular surface health and outcomes for your patients^{6,7}

3 **Automates** the treatment of MGD, a root cause of ocular surface disease symptoms, including dryness, fluctuating vision and optical aberrations^{3,4}





Achieve greater surgical success

On average, 60% of patients in a practice for cataract pre-surgical workups have signs of MGD⁸ – a primary cause of sub-optimal post-surgical vision instability and post-surgical ocular surface disease. **Approximately 1 in 2 are asymptomatic.**^{9,10}

Proactively treating MGD with **TearScience™ LipiFlow™** prior to surgery improves meibomian gland function, optimizing the tear film for:

- **Decreased** ocular surface symptoms in the post-surgical period⁴
- **Optimized** vision-related function scores in the post-surgical period⁴

In one study, the treatment of MGD with **TearScience™ LipiFlow™** improved keratometry readings and IOL selection for surgical patients.^{4,11}

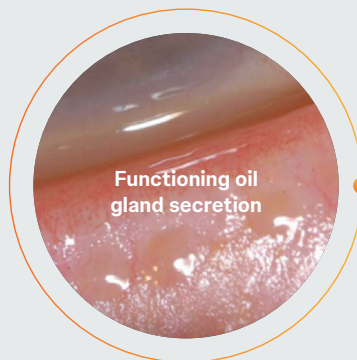
MGD IS A CHRONIC, PROGRESSIVE AND OBSTRUCTIVE CONDITION^{12,13}

MGD is characterized by gland obstruction, low secretions, and gland atrophy.¹⁴

OVER
1 IN 5
PATIENTS

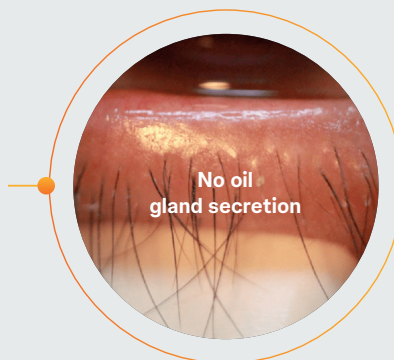


DON'T PRESENT
WITH
SYMPTOMS¹⁵



Functioning oil gland secretion

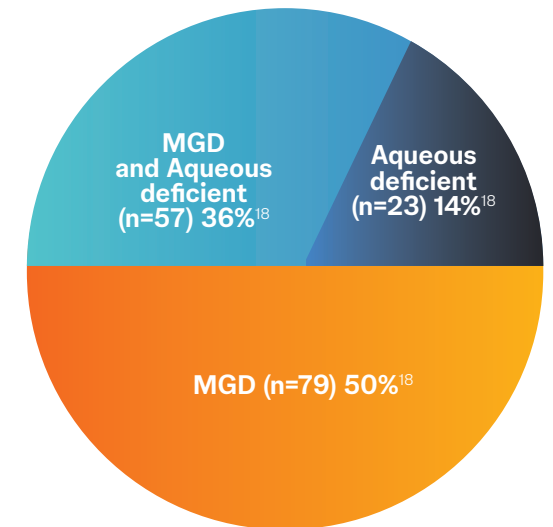
If left untreated, MGD can lead to alterations of the tear film, symptoms of **eye irritation**, clinically apparent **inflammation** and **ocular surface disease**.^{16,17}



No oil gland secretion

MGD IS A LEADING CAUSE OF DRY EYE DISEASE¹⁷

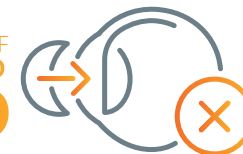
- MGD is **highly prevalent** in the general ophthalmic population¹⁷
- In one study, **86%** of patients with Dry Eye had Meibomian Gland Dysfunction (MGD)¹⁸
- Over **745 million** people worldwide suffer from Dry Eye¹⁹



*Both eyes of 299 healthy patients and those with dry eye disease (218 women, 81 men) were evaluated using Schirmer tests and MGD (Foulks-Bron scoring) across 10 sites in the EU and US. Adapted from: Lemp MA, Crews LA, Bron AJ, Foulks GN, Sullivan BD. Distribution of Aqueous-Deficient and Evaporative Dry Eye in a Clinic-Based Patient Cohort. *Cornea*. 2012; 31(5): 472-478. doi:10.1097/ico.0b013e318225415a. REF20190TH4479.

MGD AFFECTS MORE THAN 50% OF CATARACT PATIENTS⁸

SYMPTOMS OF
UNTREATED
MGD



HAVE BEEN SHOWN
TO WORSEN AFTER
CATARACT SURGERY¹⁰

~ **50%**



OF CATARACT PATIENTS
WITH MGD DO NOT
SHOW SYMPTOMS^{9,10}



PRODUCING A **HEALTHY, STABLE TEAR-FILM** IS THE
PRIMARY OUTCOME FOR THE MANAGEMENT OF MGD²⁰

EVALUATE.
TREAT.
SUCCEED.



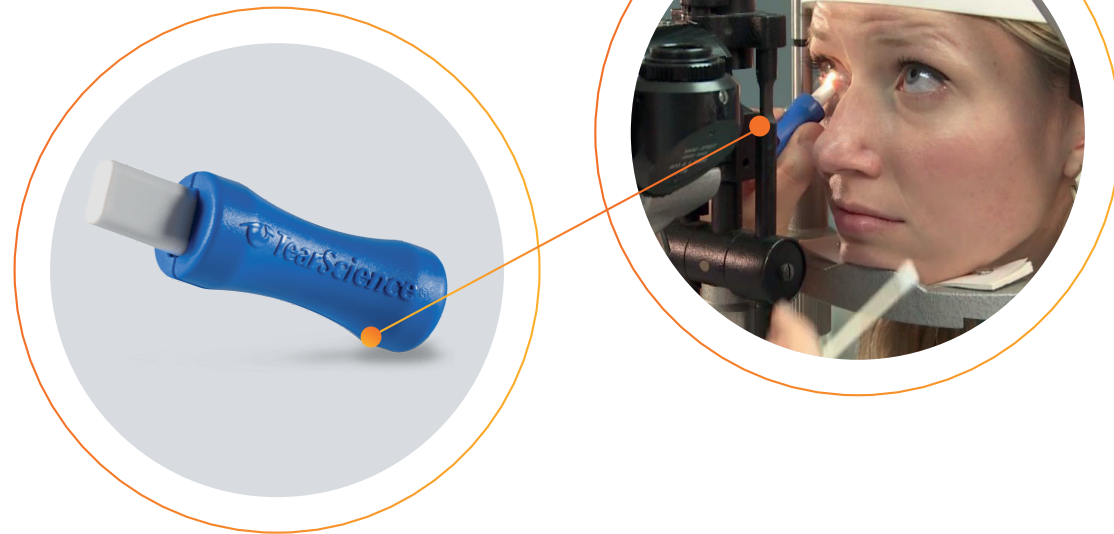
EVALUATE.

The **Meibomian Gland Evaluator** (MGE) provides standardized, repeatable evaluation of meibomian gland function.^{21,22}

MGE: A SIMPLE WAY TO ROUTINELY EVALUATE GLAND FUNCTION

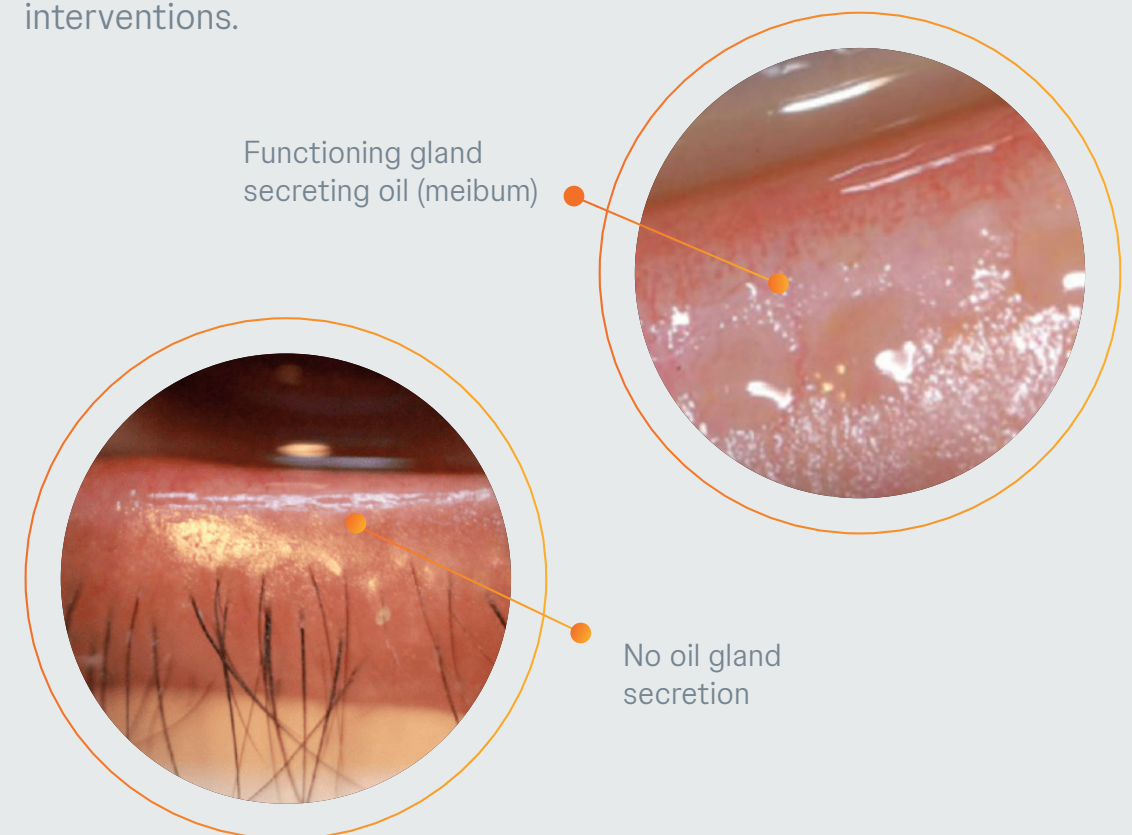
The Meibomian Gland Evaluator (MGE) can easily be added into routine eye exams.

A handheld instrument that provides a standardized, repeatable evaluation of meibomian gland function by applying the pressure of a deliberate blink, while observing gland secretions through a slit lamp.



EVALUATE HOW MEIBOMIAN GLAND FUNCTION IS CHANGING OVER TIME

By comparing gland secretion scores at different patient visits, the MGE helps you quickly and easily assess gland function, track progression and treatment response both before and after treatment interventions.



EVALUATE.
TREAT.
SUCCEED.



TearScience™
LIPISCAN™
DYNAMIC MEIBOMIAN IMAGER

EVALUATE.

With a small footprint and user-friendly design, the durable yet lightweight TearScience™ LipiScan™ with Dynamic Meibomian Imaging™ (DMI) was designed to make high-definition meibography accessible for any practice.

INCLUDE TEARSCIENCE™ LIPISCAN™ IN EVERY EXAM

Dynamic meibomian imager provides high-definition gland images:²³

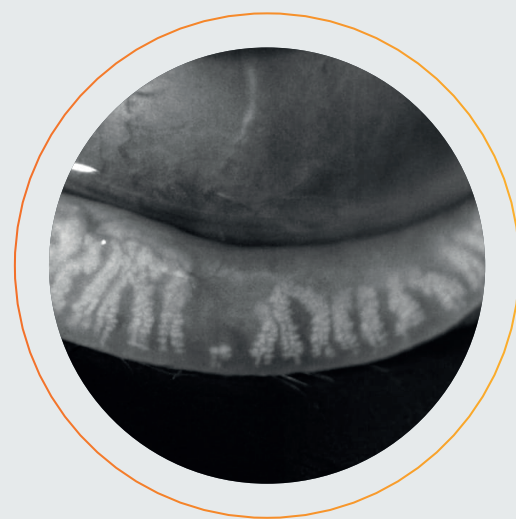
- **Small footprint and lightweight** for optimal versatility
- **Fast and intuitive** operation for seamless integration into routine workups
- **Renders high-definition images** of meibomian gland structures
- **DICOM compatibility** to export image to EMR

TearScience™ LipiScan™ maximizes workflow with fast capture of meibomian gland images

Quickly image an eyelid in about 10 seconds.

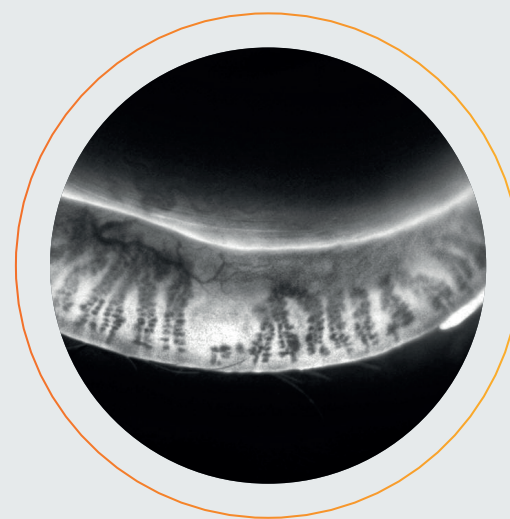
IMAGE GLANDS QUICKLY, EASILY AND EFFICIENTLY IN HD WITH TEARSCIENCE™ LIPISCAN™

Three modes of illumination for greater insight:



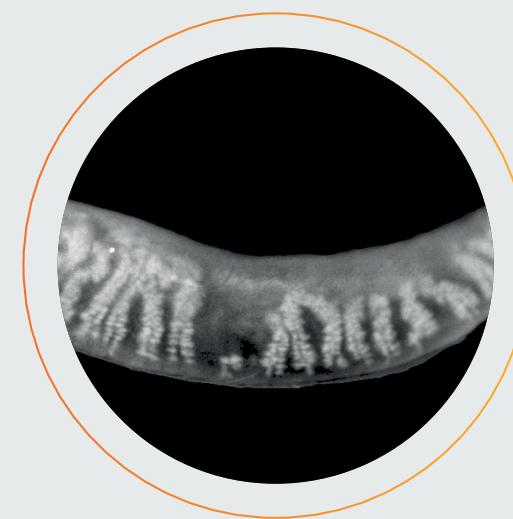
Dynamic Illumination

Surface lighting originates from multiple light sources to minimize reflection



Adaptive Transillumination

Changes to the light intensity across the surface of the illuminator compensate for the lid thickness variations between patients



Dual-Mode DMI

A combination of Dynamic Illumination and Adaptive Transillumination offers an enhanced view of meibomian gland structure

EVALUATE.
TREAT.
SUCCEED.



TearScience™
LipiView™ II
OCULAR SURFACE INTERFEROMETER

EVALUATE.

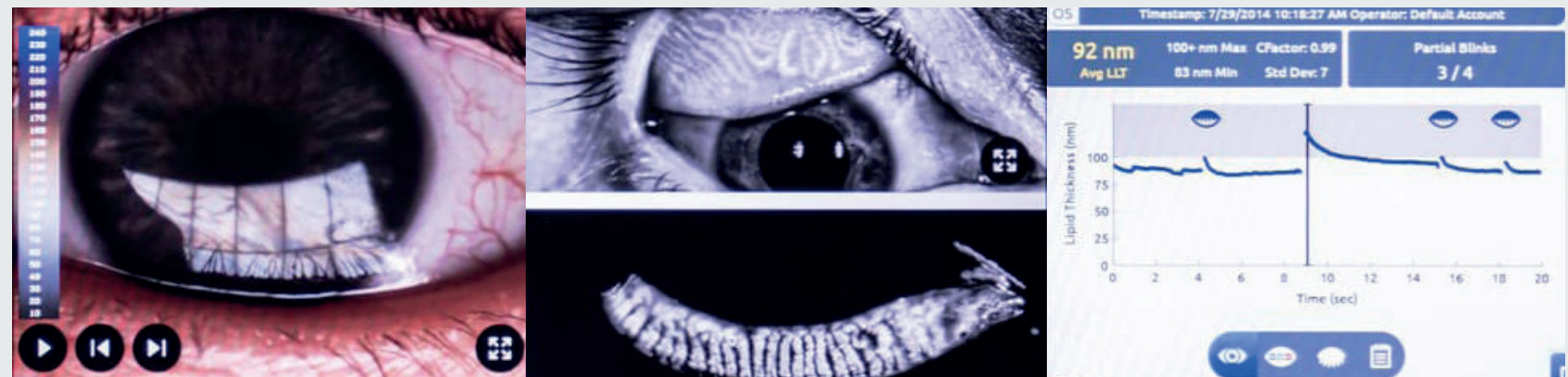
The TearScience™ LipiView™ II Ocular Surface Interferometer with **Dynamic Meibomian Imaging™** measures lipid layer thickness with nanometer accuracy, captures blink dynamics and images meibomian gland structure.

LIPID LAYER THICKNESS MEASUREMENT AND GLAND IMAGING WITH TEARSCIENCE™ LIPIVIEW™²⁴⁻²⁶

Dynamic Meibomian Imager features patented technology that provides a sophisticated assessment of factors that contribute to dry eye:²⁷

- **Real-time visualization** of the lipid layer to evaluate the dynamic response of lipids to blinking
- **Patented noise canceling technology** to measure sub-micron thickness of the lipid layer
- **Video and analysis** of blink dynamics
- **High-definition imaging** with Dynamic Meibomian Imaging

TEARSCIENCE™ LIPIVIEW™ II OFFERS REAL-TIME REPORTING AND VISUALIZATION²⁷



Evaluate the dynamic response of the lipids to blinking, while unique algorithms measure the extent of lid closure during each blink.*

Lipid Layer Thickness
 Presents lipid layer thickness in an easy-to-understand color-coded map

Dynamic Meibomian Gland Imaging
 Utilizes advanced illumination technology to capture high-definition images

Blink Dynamics
 Analyzes blink patterns and detects partial blinks

* Based on internal competitive data as of June 2018. Comparison against the OCULUS Keratograph 5M and LacyDiag Systems in the United States.

EVALUATE.
TREAT.
SUCCEED.



TearScience™
LipiFlow™
THERMAL PULSATION

TREAT.

The TearScience™ LipiFlow™ System's drug-free mechanism of action applies precise heat and pressure to remove gland obstructions, while protecting delicate structures of the eye.³

TEARSCIENCE™ LIPIFLOW™ REMOVES GLAND OBSTRUCTIONS BY TREATING FROM THE INNER LID^{2,3}

Exclusive Vectored Thermal Pulsation System features a drug-free mechanism of action:*

*A topical anesthetic is used at the beginning of the treatment procedure to ease patient discomfort for device placement.

SAFELY AND EFFECTIVELY TARGETS EVERY GLAND, ON EVERY LID, FOR EACH PATIENT^{2,3}

- Nominal inner lid therapeutic temperature
- Vaulted design protects the cornea, while multi-point sensors monitor and regulate heat and pressure
- Phased proximal-to-distal peristaltic motion helps express the contents from the glands more effectively
- Proprietary heating technology ensures precise temperature regulation and consistent heat application

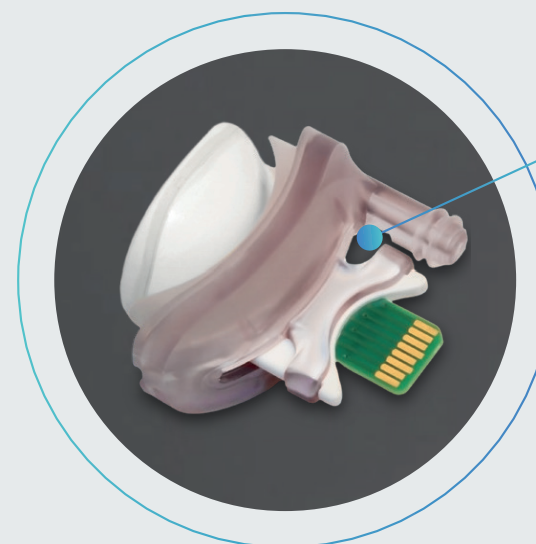
- Simultaneously applies gentle peristaltic **pressure and heat** to both upper and lower lids to liquefy obstruction and remove from glands^{2,3}

- **No drugs are required** for the procedure, after an initial anesthetic drop²

TREAT THE OBSTRUCTION TO TREAT MGD^{28,29}

TearScience™ LipiFlow™ delivers a patented combination of targeted heat and therapeutic massage to both the upper and lower lids to remove obstruction and improve gland function, shown to **increase gland secretion scores by three-fold** on average.^{2, 28}

Advanced Vectored Thermal Pulse Technology maximizes gland clearing, while protecting the delicate structures of the eye from both heat and pressure.³

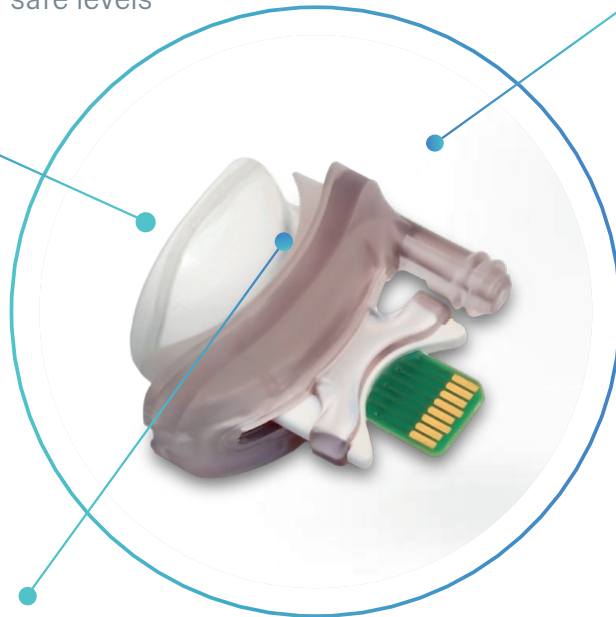


TEARSCIENCE™ LIPIFLOW™ IS THE ONLY AUTOMATED TREATMENT TO APPLY SIMULTANEOUS PRESSURE AND HEAT TO THE INNER EYELID^{24,30-33}

- An efficient, single-dose, 12-minute in-office procedure²
- Improves patient experience by avoiding manual expression and addressing the limitations of conventional MGD treatment²

INFLATION TECHNOLOGY

Pressure sensors in the console ensure the application of safe levels of pressure.²



LID WARMER

Redundant sensors within the lid warmer protect against unsafe temperatures.²

VAULTED CORNEA SHIELD

Insulation protects the cornea from exceeding a safe temperature, while an intelligent pressure feedback loop sends pulsed sequences to expel blockages and stagnant material from the gland. The vaulted design protects the delicate structures of the eye from both heat and pressure.²

THE SAFETY AND EFFICACY OF TEARSCIENCE™ LIPIFLOW™ HAVE BEEN WELL STUDIED²⁸

830K+

treatments worldwide and growing³⁴

16

prospective randomized and controlled trials³⁵



70+

peer-reviewed reports³⁵

14+

years of research³⁶

Disclaimer: Information based on internal competitive data as of June 2018 against TearScience™ and iLux Systems in the US.



Treating MGD with TearScience™ LipiFlow™ improves the ocular surface by stabilizing the tear film,⁵ an important step prior to surgery^{37,38}

Failure to manage OSD due to MGD before cataract surgery could potentially result in:³⁸

- Unsatisfactory vision
- Refractive misses
- Fluctuating vision
- Induced higher-order aberrations
- New and/or worsened symptoms
- Redness
- Pain
- Post-operative infection such as endophthalmitis

TearScience™ LipiFlow™ optimizes tear film homeostasis by improving the lipid layer, tear film stability and reducing inflammation^{28,39,40}



Whether post-surgical results or a lifetime of eye health, the Johnson & Johnson Vision portfolio of products enables improved or excellent outcomes for your patients.

EVALUATE.
TREAT.
SUCCEED.

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