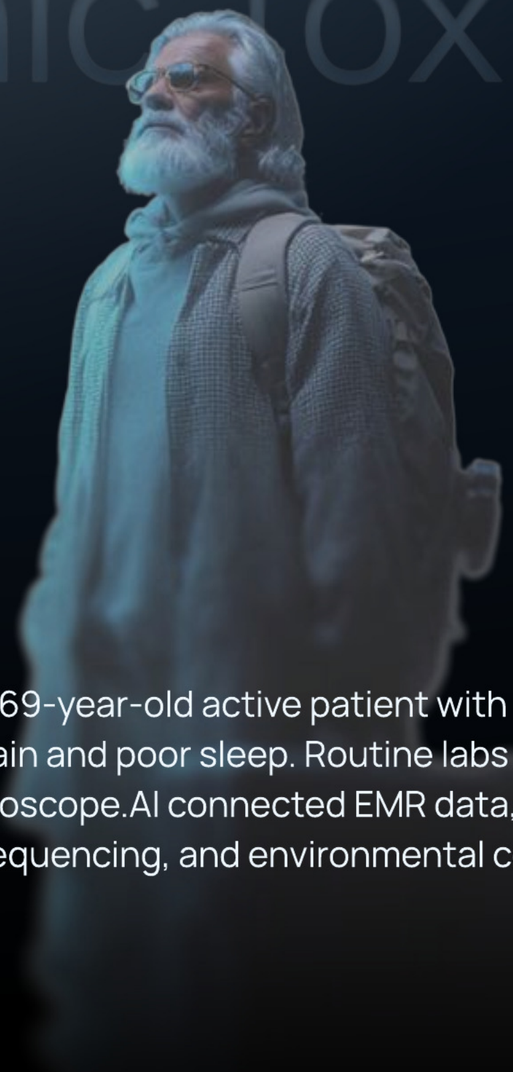
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Case study: Arsenic Toxicity



How genomics & AI surfaced a hidden environmental toxicity and got sleep back on track

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A 69-year-old active patient with years of nocturnal leg pain and poor sleep. Routine labs looked fine until Bioscope.AI connected EMR data, whole-genome sequencing, and environmental context.

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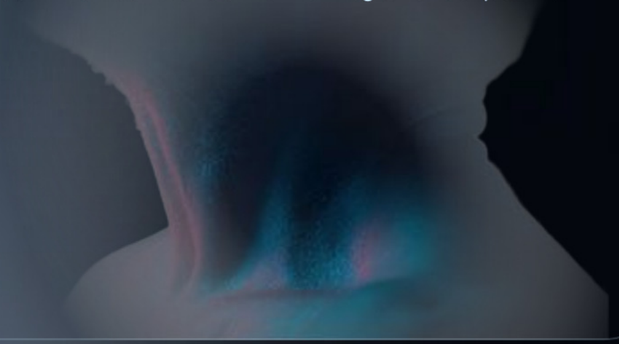
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Patient Snapshot

"Dan," 69, active hiker/skier in Utah; 5'9", 155 lbs; fitness-focused

Medical History

Dan is a mostly healthy guy whose chief complaint is nocturnal leg pain and poor sleep. He was diagnosed with Restless Leg Syndrome (RLS) as a teenager and has been taking Ropinirole as well as various pain medications for decades. He has a family history of Parkinson's and other siblings with RLS. He was diagnosed with hypothyroidism at the age of fifty which has been well-controlled with 75 mcg of levothyroxine.



Symptoms

Dan's **nocturnal leg pain** has worsened greatly the last couple of years. Now his only relief is multiple scalding hot baths every night. His sleep has deteriorated to the point that he's only getting 3-4 hours a night.



New Flag

Despite his poor sleep, Dan remains very active. He frequently goes for long hikes in the mountains of Park City where he lives and is also a passionate rock climber. His physician is puzzled that his **HbA1c has risen to 5.7**, putting him in the pre-diabetic range. Strange for such a fit, active guy of his size.



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How one click and a cheek swab sample led to a clinical breakthrough

Automatic EMR ingest

01

Dan's physician has recently signed up for the Bioscope.AI service and enrolled all her patients. Since Bioscope.AI integrates with her EMR, Dan's entire medical record is securely ingested into Bioscope.AI.

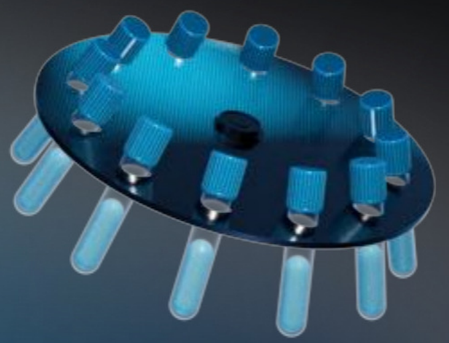


Genome sequencing

02

The Bioscope.AI service includes whole genome sequencing. Like all of his physician's patients, Dan receives an attractive kit that he uses to collect a cheek swab and drop it in the mail. A couple of weeks later, Dan's physician is notified that his results are in.

Bioscope.AI instantly processes Dan's genome in the background. From now on, every aspect of his care will be informed by this information.



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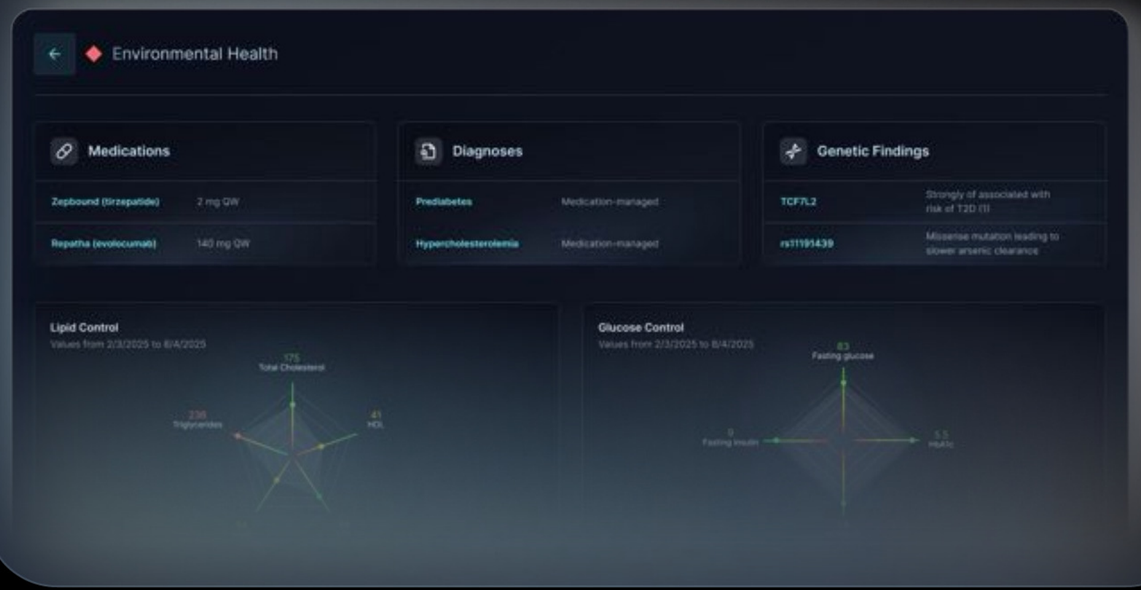
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Unified Health Dashboard

03

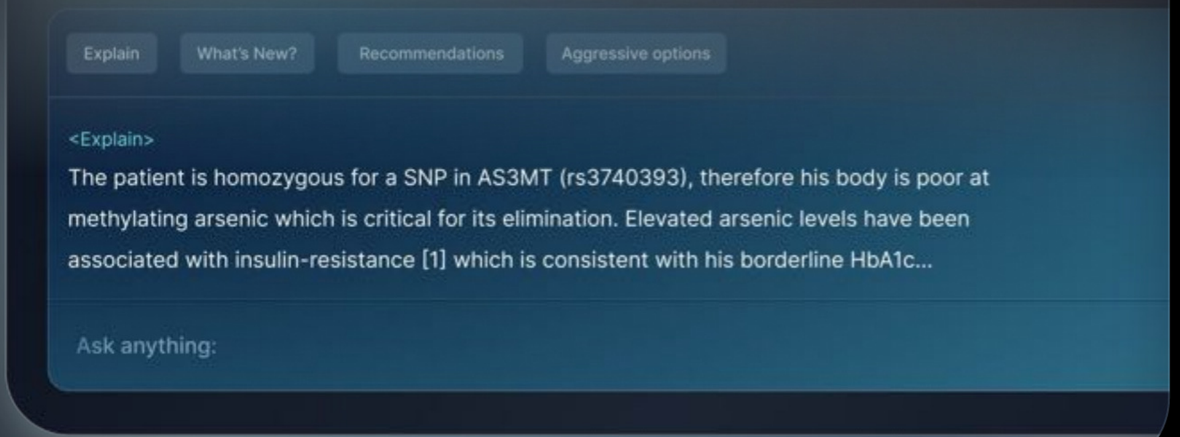
After processing Dan's electronic medical record and genome, Bioscope.AI surfaces a concern in the Environmental Health section. While overall health markers look solid, this dimension is marked red, prompting his physician to take a deeper look, just by clicking on it.



Why the red flag?

04

Bioscope.AI explains: Dan has bi-allelic variants in the gene AS3MT which is responsible for the methylation and elimination of arsenic. He lives in a former mining area where the soil is contaminated with arsenic and cadmium. What's more, he's an avid hiker who spends hours trudging through this toxic dirt. Because of his genetics, he breathes arsenic in but can't get rid of it fast enough. His physician is stunned to learn that high arsenic levels induce insulin-resistance! The explanation is complete with academic citations.



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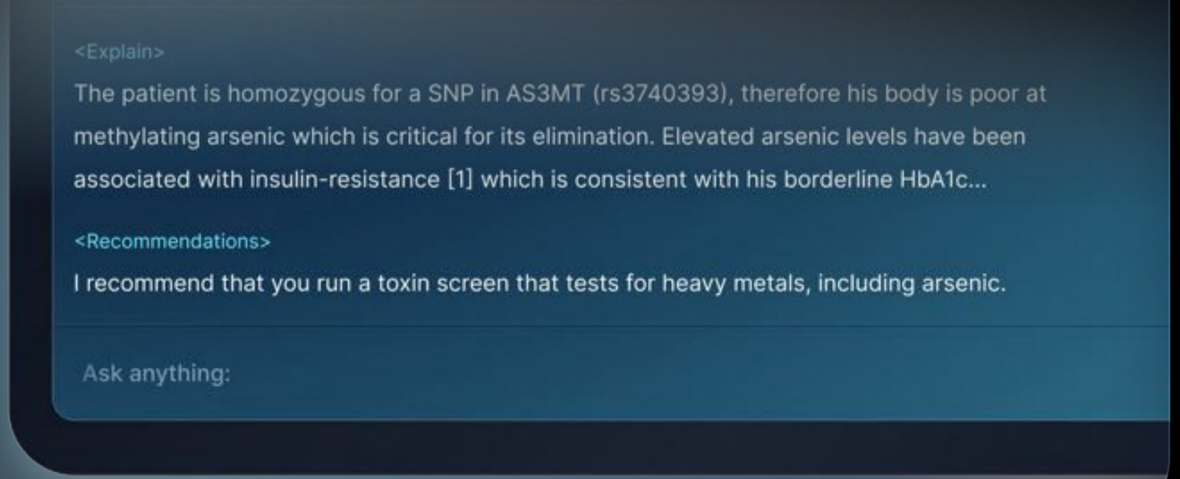
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How one click and a cheek swab sample led to a clinical breakthrough

Suggested next step

05

With a single click, Dan's physician asks Bioscope.AI for recommendations. Bioscope.AI suggests a heavy metals panel that includes arsenic. Dan's physician can ask any questions she likes but eventually approves and orders the test.



Results auto-sync

06

The toxin screen reveals that Dan's arsenic levels are dangerously high - at the 96th percentile. And it looks like those plastic bottles he takes on long hikes are toxifying him as well. Results are automatically reflected in the Bioscope.AI dashboard.



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Bioscope.AI Workflow

How one click and a cheek swab sample led to a clinical breakthrough

07

Auto-generated plan

Dan needs chelation therapy - fast. His physician works with Bioscope.AI to devise a plan using dimercaptosuccinic acid (DMSA) and supporting supplements. Bioscope.AI even generates an educational PDF for Dan that explains arsenic toxicity and the plan to treat it.

Within days his nocturnal leg pain has diminished to the nuisance he's known since adolescence and he's back to sleeping 6-7 hours a night. Both Dan and his physician are thrilled to have figured out and treated the root problem. Dan is armed with the knowledge that he'll need to monitor his arsenic levels to make sure they never approach toxic levels again.



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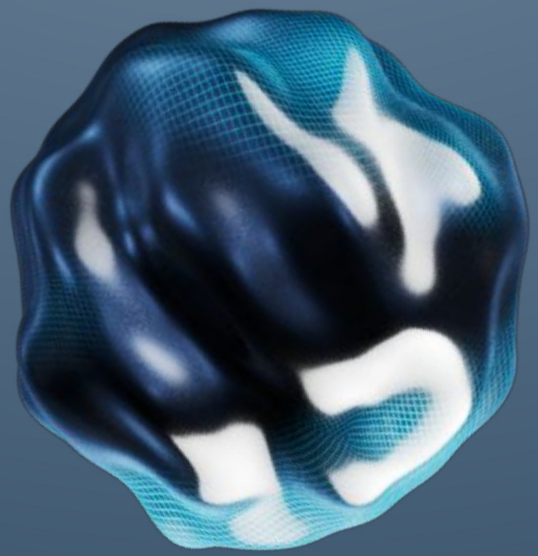
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Before & After

See how targeted insights and personalized action translated into real clinical change.

	Sleep	Pain	Genetics
BEFORE:	2–3 hours fragmented sleep	Severe nocturnal leg pain	Unknown
AFTER:	6–7 hours uninterrupted sleep within days	Returned to baseline, manageable with RLS routine	AS3MT variant identified → chelation plan personalized

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Ready to Transform Your Clinical Practice?

Unlock hidden insights with Bioscope.AI's seamless integration of genomics, AI, and patient data — empowering you to deliver truly personalized care.

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What This Means for Your Practice

CATCHES “INVISIBLE” PATTERNS

Genetic variants + local exposure + subtle lab drift (HbA1c 5.7) point to arsenic — completely unsuspected.

NATIVE TO YOUR WORKFLOW

EMR link launches Bioscope.AI.

CLINICIAN-READY PLANS

Auto-generated patient education and protocols save time.

Frequently Asked Questions (FAQ)

Is this real case?

Yes, slightly fictionalized from a real case to protect identity.

Does Bioscope.AI diagnose?

It works as an intelligent colleague helping human physicians do everything better, including diagnosing and treating patients.

What tests were used?

Bioscope.AI recommended a toxin panel including heavy metals. The physician made the final decision and ordered the test.

Bioscope

This is true personalized medicine.

This case shows what happens when a caring physician is empowered with genomics and AI.

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