avigena

The Leading Genomic Prevention Company in the MENA

CONTACT US FOR MORE INFORMATION:

avigena.com

info@avigena.com

"Prevent Disease Before It Starts."

Polygenic Risk Score (PRS) for Prostate Cancer
Avigena Preventive Genomic Program

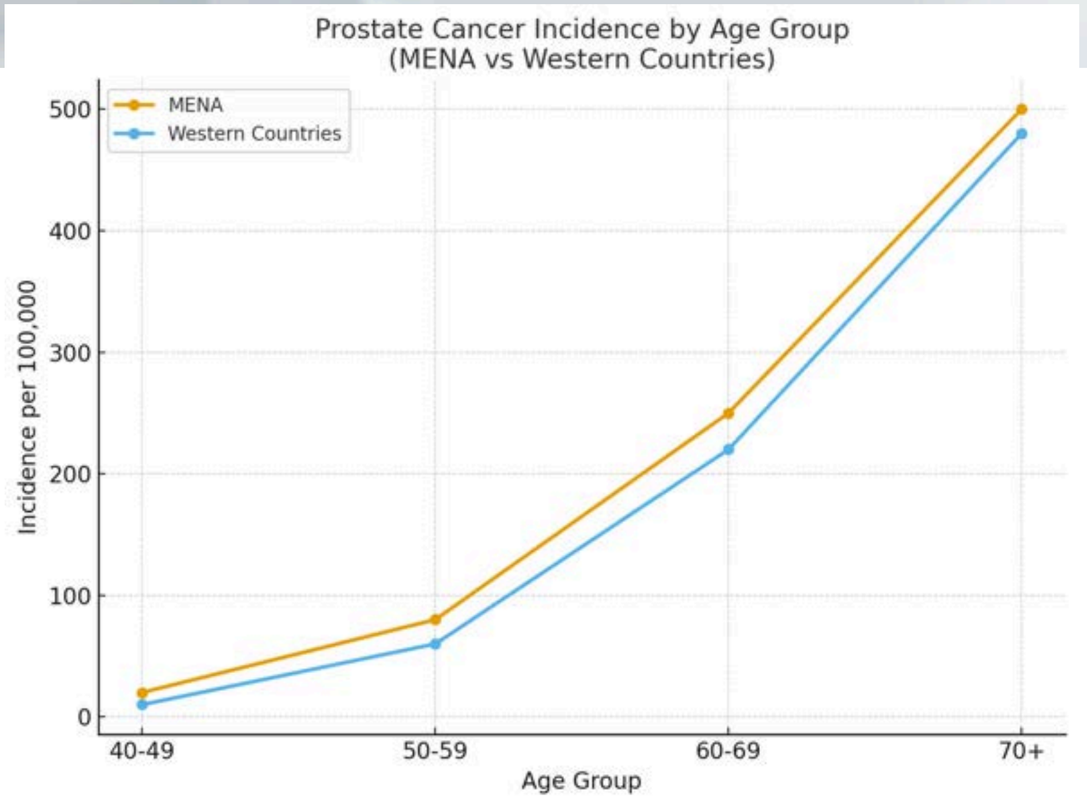
Predict. Prevent. Personalize.

Educational overview for physicians and healthcare providers

Prepared by Avigena Scientific Office – Research & Development Department

Burden of Prostate Cancer in the MENA Region

- Prostate cancer is one of the most common cancers in Gulf men.
- Incidence rises sharply after age 50.
- Incidence has been steadily increasing.



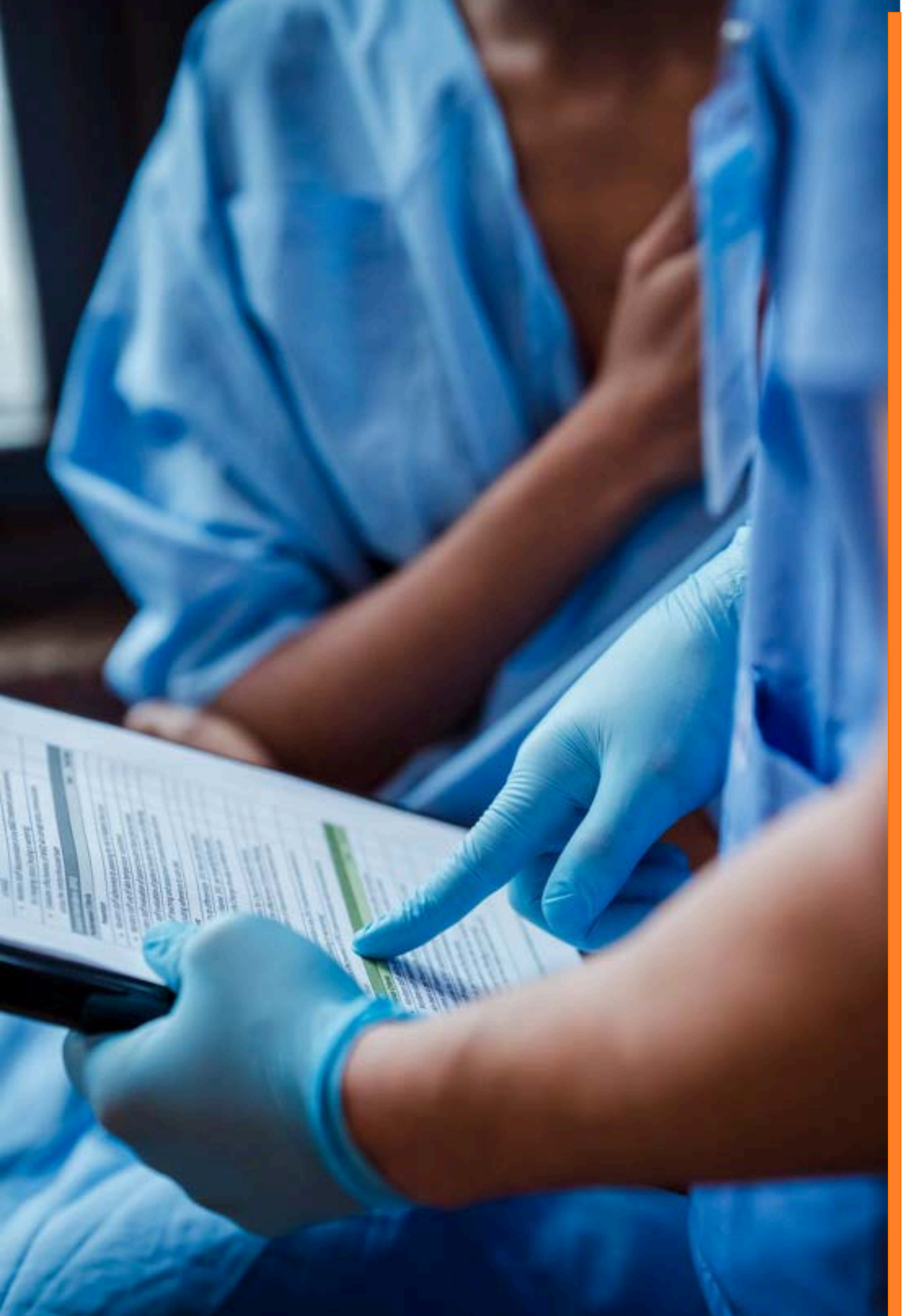
Safiri S. et al. (2025) *Sci Rep*, 15(1).

avigena

The Challenge in Current Prevention

PSA & MRI miss significant cancers

- Traditional risk tools miss ~30–40%
- PSA & MRI miss significant cancers
- High genetic risk can exist with no family history of PC
- Current standard genetic tests (e.g., WES/WGS) detect only monogenic variants



avigena

Genomic Approach to Prevention - Introducing PC-PRS

What is PC-PRS ?

A computational score derived from thousands to millions of genetic variants (SNPs)

Estimates an individual's inherited risk for common diseases such as Prostate Cancer

Requires a single DNA test (blood or saliva); stable across life

Independent of traditional risk factors

Complements—does not replace—current clinical models

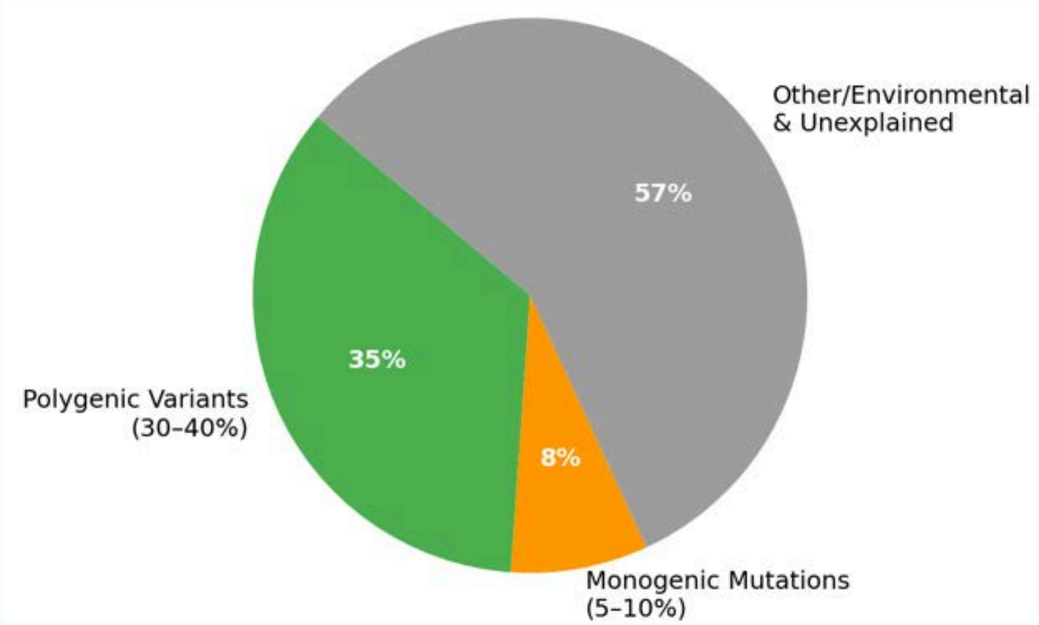
PC-PRS: A New Paradigm

Traditional risk models miss ~30–40% of high-risk men

—PRS captures these hidden risks

- Prostate cancer is one of the most heritable cancers (~57% genetic contribution)
- Rare high-risk mutations (monogenic): ~5–10%
- Polygenic risk contributes 30-40%; far more than rare mutations(5-fold greater impact)

Distribution of Factors Contributing to PC Risk



avigena

WHO SHOULD TAKE THIS TEST?

- Healthy Men aged 40 and above interested in understanding their genetic risk
- Men with a family history of prostate cancer (especially first-degree relatives)
- Men of African or Middle Eastern ancestry, who are at higher genetic risk and underrepresented in traditional screening tools
- Men with known monogenic mutations (e.g., BRCA1/2, HOXB13) seeking a more comprehensive risk assessment
- Men with elevated PSA levels or inconclusive biopsy results, as part of a broader risk evaluation
- Men at average risk considering when and how often to begin screening

Risk Tiers & Interpretation

- Very High (~5%)
- High (80–95%)
- Average (20–80%)
- Low (<20%)

Low PRS

Routine care and general prevention advice

Average PRS

Lifestyle counseling and early screening

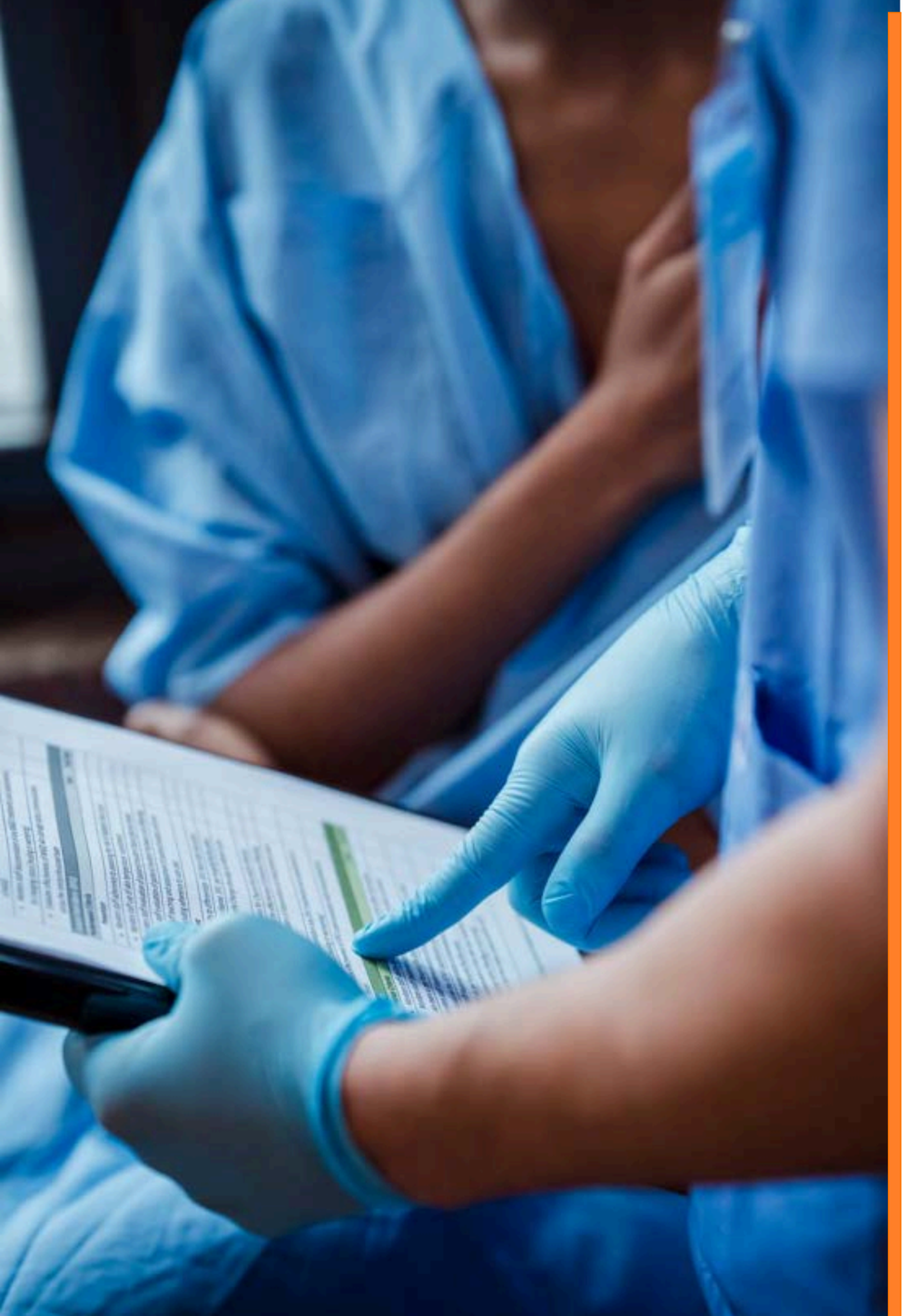
High PRS

aggressive screening and specialized care programs

Individuals in the top 1% PRS have ~3-4-fold higher Prostate Cancer risk vs. average.

Individuals in the top 20% PRS have ~2-fold higher Prostate Cancer risk vs. average.

Khera A.V. et al. (2019) *Circulation*, 139:523–34.



avigena

From Genetic Risk to Preventive Action

PRS identified high proportion of clinically significant PC

PRS stratification (top 10%) identifies men at highest risk, including cancers missed by PSA/MRI.

Integrating PRS with PSA/MRI enables a personalized screening model.

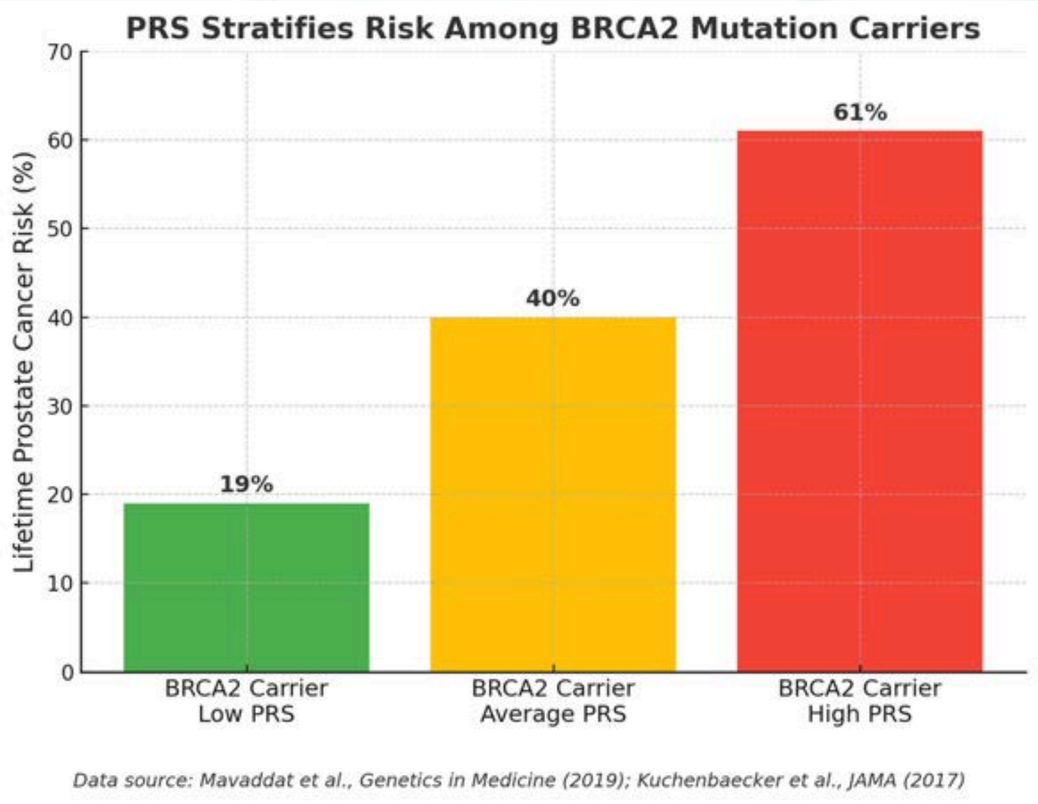
The NHS “10-Year Plan” aims to embed genomics and predictive analytics into routine preventive care.

UK NHS and EU pilots are advancing PRS-guided screening

Meyer A. et al. (2022) *J Clin Oncol*, 40(18_suppl):LBA5000.
The Guardian (2023).
McHugh J.K. et al. (2025) NEJM, 392(14):1406–17.

From Genetic Risk to Preventive Action

PRS can stratify risk even among men who carry a monogenic mutation for prostate cancer



Monogenic mutations confer a high baseline risk, however not all carriers develop cancer

PRS further refines this risk—distinguishing those at highest vs lowest risk

PRS refines screening, surveillance, and prevention for mutation carriers—shifting from one-size-fits-all to personalized risk management

Ahmed's Story – Prostate Cancer

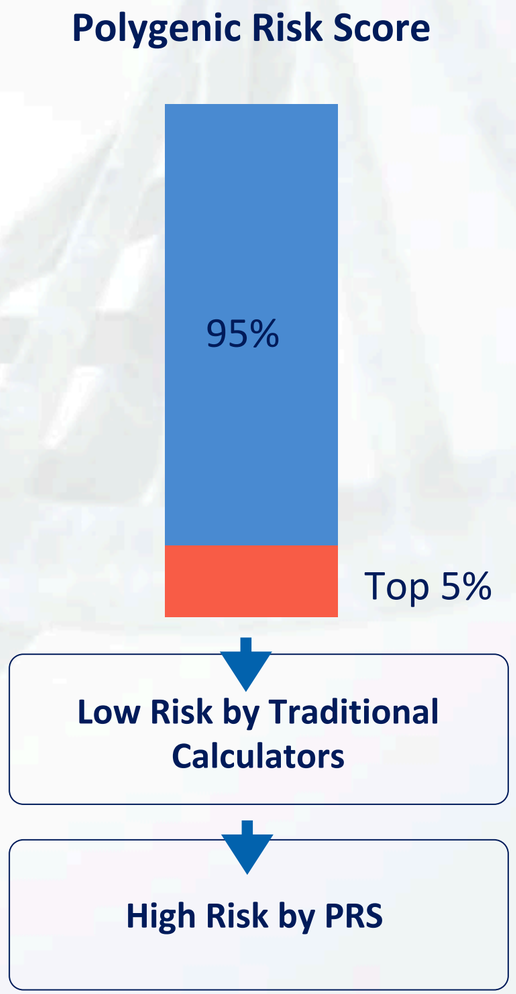
Ahmed, 45, had no family history of prostate cancer.
His PSA was normal and he had no urinary symptoms. Traditional screening placed him at average risk.

PRS → revealed he was in the **top 5% for prostate cancer risk** (~3–4x higher lifetime risk).

With this knowledge, his physician recommended earlier and more frequent PSA testing, MRI surveillance, and lifestyle counseling.

Early detection at age 52 allowed curative treatment before the cancer spread.

Without PRS, Ahmed would likely have entered standard screening only at 55—risking a later, more advanced diagnosis.



WHY PRS MATTERS FOR PROSTATE CANCER

- **Personalized Risk:** PRS provides an individualized estimate of lifetime prostate cancer risk based on common genetic variants.
- **Beyond Family History**: It identifies risk in men without a known family history or monogenic mutation.
- **Stronger Stratification:** PRS complements PSA and family history, helping distinguish between low-, intermediate-, and high-risk individuals.
- **Early Detection:** Guides earlier and more frequent screening in high-risk individuals, potentially enabling timely diagnosis and treatment.
- **Precision Prevention:** Informs lifestyle counseling and preventive strategies tailored to genetic risk.
- **Better Resource Use:** Helps reduce over-screening in low-risk men and focus healthcare resources on those most at risk.

Global Clinical Adoption of PRS

UK: BARCODE1 prostate cancer PRS trial (Institute of Cancer Research & Royal Marsden);

NHS considering adoption.

US: Leading hospitals (Harvard, MGH, Vanderbilt, Mayo, Columbia, Duke, etc.) integrating PRS into clinical care (2024).) .

Private sector: Bupa (UK) launches PRS testing for customers (2025)

PRS implemented across 10 chronic diseases in diverse U.S. populations (Pharoah et al., 2025; Nat Med).

Pharoah P. et al. (2025) *Nat Med*, 31(2):220–29

avigena

Implementation Pathway

Comprehensive Framework Solution

Order the Test

Secure physician or patient order.

01

Collect Your Sample

Saliva kit at clinic or home.

02

DNA Analysis

Performed in certified labs

03

Get Your Results

Delivered via secure portal

04

Virtual Counseling

Genetic counselor explains next steps

05

Share with Your Doctor

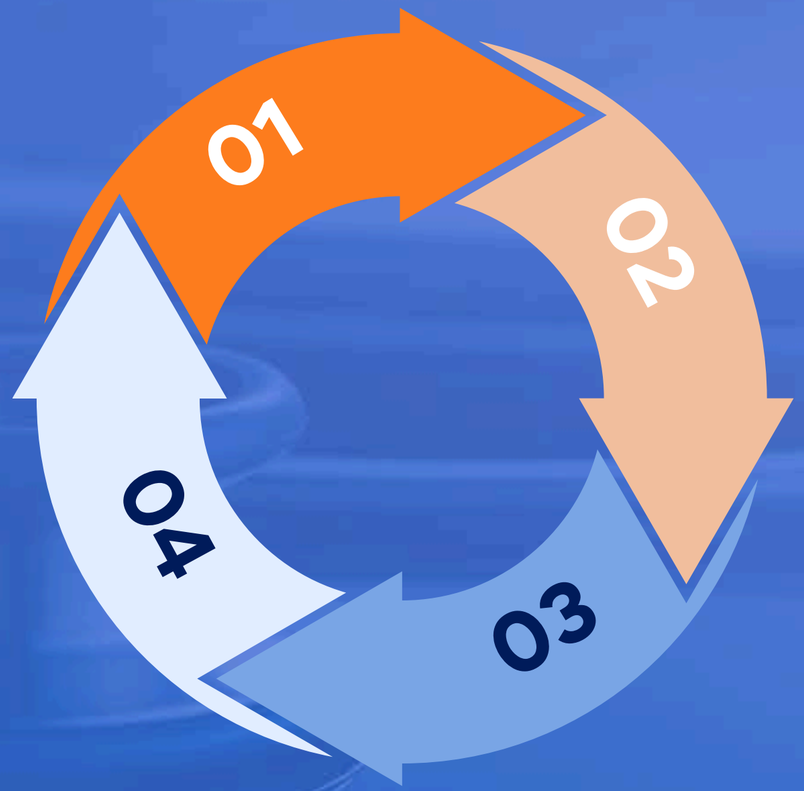
Clinical summary provided with consent

06

avigena

Genetic Testing = Risk Awareness + Actionable Prevention

Cycle of Genetic Testing Benefits



Improved Health Outcomes
Improved long-term health

Risk Awareness
Understanding genetic risks

Personalized Plans
Tailored prevention strategies

Informed Decisions
Smarter healthcare choices

Physician-led care

Avigena provides data and insights, not prescriptions

PRS serves as a clinical tool, not a replacement for judgment

Referring Physician

Final decisions always rest with the referring physician

Risk Reports

Avigena provides evidence-based reports to support clinical decision making.

Personalized Care

Genomic tools enhance— not replace— physician expertise

Genomic Tools

PRS is a supportive tool, not a diagnostic test

avigena

Follow-Up with Referring Physicians: Closing the Loop

Generate Genetic Risk Report

Avigena creates a detailed report

Provide Clinical Decision Support

Offers clinical decision support

Include Follow-Up Actions

Suggest next steps for patient care

Physicians Manage Patients

Referring physicians oversee patient management

Access E-Consults

Ongoing access to e-consults and support

Data Privacy and Security

- Avigena Ensures Safety, Privacy, and Compliance in PRS Testing
- Avigena has partnered with CLIA/ CAP-certified laboratories.
- All data is securely stored under HIPAA and GDPR-like standards
- Result within 4-6 weeks

CAP-Certified Laboratory

Ensures high-quality laboratory services

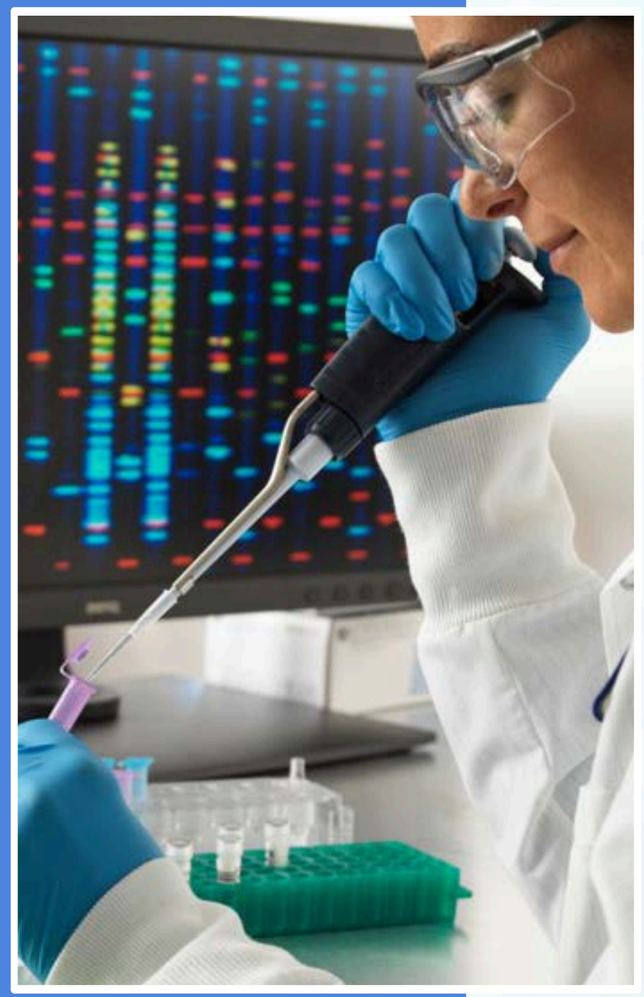
Regulatory Policies

Implements strict guidelines for data protection

HIPAA Compliance

Guarantees compliance with privacy standards

Limitations & Responsible Use of Genomic Prediction



1. PRS provides probabilistic, not diagnostic information.
2. Does not detect rare variants unless monogenic testing is added.
3. Results should always be interpreted in the context of clinical risk factors.
4. Always reviewed with a physician and genetic counselor

avigena

Partnering with Avigena: Hospital Collaboration Model

Enhanced patient care through personalized risk reports

Access to innovative, predictive genetic testing and preventive services

Increased hospital visibility as a leader in genomic prediction and preventive care

Promote utilization of clinical services for individuals at high genetic risk

avigena

Predictive Steps in Precision Medicine

Predict to Prevent -Powered by PRS

Early detection through PRS can prevent prostate cancer and save lives.

01

Identify Patient Journey

Recognizing the patient’s ongoing medical path

02

Predict Next Medical Event

Using PRS to forecast future health issues

03

Initiate Preventive Steps

Implementing actions to prevent or detect early

Early Detection guided by the PRS prevents Prostate Cancer and saves lives

Predicting Medical Events
Anticipating health issues before they occur

Preventing Prostate Cancer
Reducing risk through early intervention.

Identifying High-Risk Individuals
Early detection of at-risk patients

Polygenic Risk Score (PRS)
Precision medicine approach to prevention

Disclaimer: Educational material only; PRS must be interpreted by qualified healthcare professionals within clinical context

avigena

The Leading Genomic Prevention Company in the MENA

"Early detection guided by PRS prevents prostate cancer and saves lives."

CONTACT US FOR MORE INFORMATION:

avigena.com

info@avigena.com