



Binah.ai Smartphone-Based Health Assessments: Unveiling Hidden Risks in Life Insurance Underwriting and Beyond

What if insurance underwriters, actuaries, and risk managers had a magic wand to remotely assess each candidate's real-time health status? No more relying on potentially inaccurate self-reported information from lengthy questionnaires. While applicants may intend to honestly report their health status, a significant awareness gap often hinders their ability to do so, with studies revealing that nearly 50% of individuals with chronic conditions like diabetes and hypertension remain undiagnosed.

The good news is, that "magic wand" already exists, and it's in every candidate's pocket: their smartphone.

Transforming Smartphones into Health Assessment Tools

Binah.ai's award-winning software offers insurers a unique advantage by transforming smartphones or tablets into health and wellness monitoring tools. Seamlessly integrated into insurers' workflows or apps, our solution empowers insurers to remotely measure a comprehensive range of health and wellness indicators, perform revolutionary bloodless blood tests, and unveil hidden health risks. By opting to share their health data, policyholders and applicants can enjoy better, faster, and more personalized services at lower costs.

Health Indicators You Can Measure with Binah.ai

Dynamic Indicators				Blood Tests	Risks				Other
 Blood Pressure	 Heart Rate	 Heart Rate Variability	 Breathing Rate	 Hemoglobin*	 ASCVD Risk	 High Blood Pressure Risk	 Low Hemoglobin Risk*	 High HbA1c Risk*	 Fall Detection
 Sympathetic Stress	 Parasympathetic Activity	 PRQ	 Oxygen Saturation	 Hemoglobin A1c*	 High Fasting Glucose Risk*	 High Total Cholesterol Risk*	 Tuberculosis Risk*	 Heart Age	 Wellness Score

*Under research

Health Assessment Challenges and Opportunities in Today's Underwriting

Age is Just a Number: Shifting Disease Demographics

Chronic diseases are on the rise, projected to cause [70% of deaths globally by 2030](#), and they are increasingly affecting younger populations who often believe they are too young to suffer from these conditions. [In one study, more than half \(53.8%\) of adults aged 18-34 years reported having at least one chronic condition, with nearly one quarter \(22.3%\) reporting more than one.](#) This rise is further compounded by the growing stress epidemic disproportionately impacting younger generations. Meanwhile, older adults are taking more proactive steps to monitor and maintain their health, challenging traditional assumptions about age and wellness. These changing demographics highlight the limitations of traditional risk stratifications that heavily rely on age and often do not require medical testing.

Image 1: How Binah.ai addresses over 85% of applicants not required to undergo medical testing.

Improve initial medical screening for underwriting

Underwriting amount	Issue age							
	0-17	18-30	31-40	41-50	51-60	61-65	66-69	70-85
Through \$50,000	A ✓	A ✓	A ✓	A ✓	A ✓	A ✓	D	M
\$50,001 - \$100,000	A ✓	A ✓	A ✓	A ✓	A ✓	A ✓	D	M
\$100,001 - \$150,000	A ✓	A ✓	A ✓	A ✓	A ✓	A ✓	D	M
\$150,001 - \$200,000	A ✓	A ✓	A ✓	A ✓	A ✓	A ✓	E	ME
\$200,001 - \$250,000	A ✓	A ✓	A ✓	A ✓	A ✓	A ✓	E	ME
\$250,001 - \$300,000	A ✓	C ✓	C ✓	C ✓	C ✓	C ✓	E	ME
\$300,001 - \$500,000	A ✓	C ✓	C ✓	C ✓	C ✓	C ✓	E	ME
\$500,001 - \$1,000,000	A ✓	D	D	D	E	E	E	ME
\$1,000,001 - \$3,000,000	A ✓	D	E	E	E	E	E	ME
\$3,000,001 - \$5,000,000	A ✓	D	E	E	E	E	E	ME
\$5,000,001 - \$10,000,000	A ✓	E	E	E	E	E	E	M
\$10,000,001 and up	A ✓	E	E	E	E	E	E	ME

Current value

Over 85% of applicants do NOT undergo medical testing. Binah.ai's measurements can be used to better assess policy risk and improve insurance company competitiveness

Future value

Converting Non-STP into STP customers from C to A

Medical certification will enable Binah.ai's measurements to expand the STP list to applicants in the C category with high results, improving customer experience, time-to-quote, and reducing operational costs

✓ - Optional- virtual exam is required (using Binah.ai)

Category Medical Requirements
A Application (for VSNT, ESNT or Std Tobacco)
Preferred rates are not available at ages 0-65 for face amounts through \$250,000.
C Application Mini Exam (vitals, physical measurements), Blood and Urine - Additional Questions on Lab Ticket
D Application, Exam, Blood Profile, Urine
E Application, Exam, Blood Profile, Urine and EKG
M Application, Exam, Blood Profile, Urine, Mature Assessment
ME Application, Exam, Blood Profile, Urine, EKG, Mature Assessment

Hidden Health Risks: The Awareness Gap

Despite these changing demographics, people of all ages remain unaware of their real health status. In fact, [nearly 50% of those with diabetes](#) and [hypertension](#) are unaware they suffer from the conditions. This widespread lack of awareness increases health risks and challenges underwriters relying on self-reported data and questionnaires.



The Drawbacks of Underwriting Questionnaires

Traditional underwriting processes for life insurance policies rely heavily on health questionnaires built on applicants' age vs. premium amount, with over 85% of applicants not required to undergo medical testing, (see image 1).

Prone to Error: Questionnaires rely on self-reported data, which can be inaccurate due to misunderstandings, unintentional mistakes like “smoking amnesia”, or intentional misreporting. Applicants might forget details or downplay certain habits. While this streamlines the application process, it also presents several challenges:

- **Time Drain:** Lengthy questionnaires and processing times create a time burden for both applicants and underwriters.
- **Data Inconsistency:** Ensuring consistent and accurate data across various questionnaires is difficult, leading to potential evaluation biases.
- **Psychologically Demanding:** Requiring introspection into uncomfortable topics like diseases and health issues, questionnaires can lead to procrastination and application delays.

The Need

Insurers require a fast, cost-effective way to obtain objective, real-time health data to improve risk assessment for applicants who don't undergo medical testing and to enhance customer satisfaction.

Benefits of Underwriting with Binah.ai

For Insurers:

Unveil Hidden Risks with Instant Health Insights: Better evaluate risk profiles that do not require medical testing. Identify potential health risks early, update mortality tables, and offer specialized coverage as needed.

Streamline Underwriting Operations: Reduce operational costs and improve efficiency by automating and expediting the underwriting workflow using real-time health data.

Reduce Applicant Churn: Simplify the underwriting process to prevent drop-offs caused by lengthy procedures or daunting questionnaires that make applicants reflect on uncomfortable issues like diseases.

Improve Customer Experience and Engagement: Understand client wellbeing needs and provide tailored insights, services, and product recommendations based on real-time health data. Where available, enroll clients in wellness programs to support their wellness journeys and build lifelong partnerships.

Offer Fair and Competitive Pricing: Develop tailored premium structures based on more precise risk profiles to prevent underpricing and overpricing.

Engage Health-Conscious Customers: Attract and retain desirable customer segments by rewarding healthy behaviors with wellness programs and preferential rates.

Drive Effective Cross-Selling: Utilize detailed risk data to personalize cross-selling strategies, recommending relevant products such as dental, vision, critical illness, or income protection insurance.

Boost Digital Transformation: Accelerate digital transformation by reducing manual work for both you and your clients. Deliver seamless, fully digital experiences, all accessible directly from their smartphones.

Position Your Brand as a Tech-Forward Innovator: Deliver a standout experience that sets your organization apart. Showcase your commitment to innovation with fast, technology-driven processes that enhance your brand's image and establish you as a leader in digital transformation.

For Applicants and Policy Holders:

Unparalleled Convenience: Complete comprehensive health assessments quickly and effortlessly from any location, any time, using a smartphone.

Faster Coverage: Benefit from expedited underwriting processes leading to quicker policy approvals and issuances.

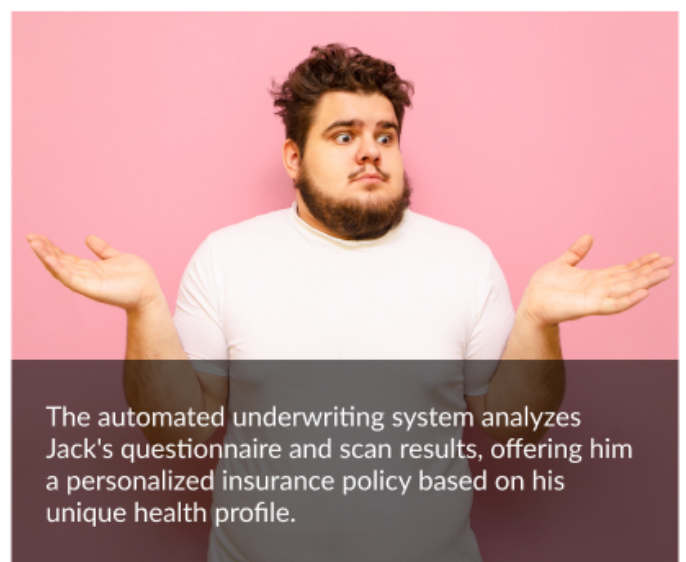
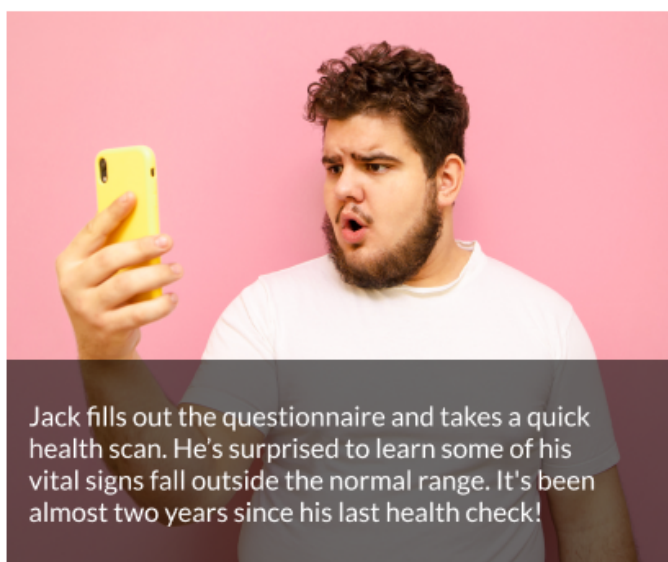
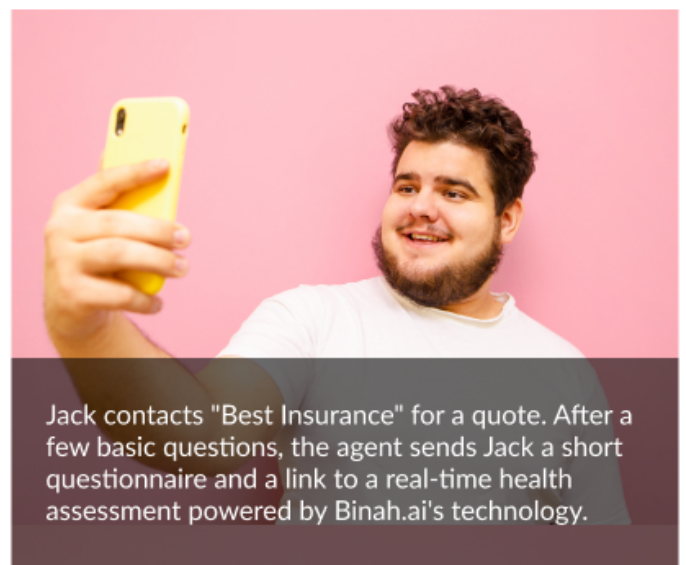
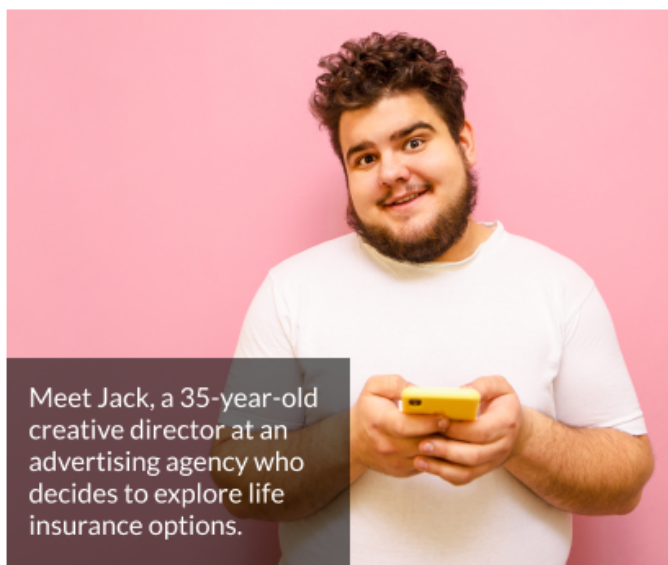
Competitive Pricing: Receive fair and personalized premium rates reflective of up-to-date health assessments.

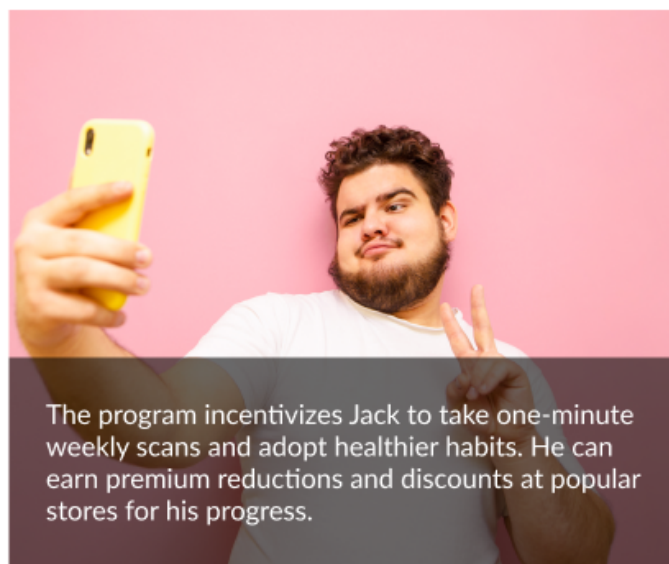
Personalized Offers: Enjoy engaging and tailored insurance products and wellness programs that align with individual health profiles.

Lifetime Wellness Partnership: Get support beyond coverage with continuous health insights and engaging wellness services.

Underwriting with Binah.ai: How It Works

Binah.ai's technology transforms the underwriting process into a digital, personalized, and seamless experience for applicants. Insurers gain instant access to real-time health data shared by the user, enabling them to offer more accurate pricing and personalized services. Here's how Binah.ai streamlines the underwriting health assessment:





1. Applicants receive a link to their smartphone to conduct a quick health assessment scan from the comfort of their homes. A clear explanation of how the data will be used should be provided to ensure transparency and allow applicants to make informed decisions.
2. Using their smartphone camera, applicants take a 35-60-second selfie video health assessment. Additionally, a short cough analysis via the smartphone microphone can be offered to assess tuberculosis risk and detect smoking habits.
3. With the applicant's consent, insurers instantly receive a wide range of real-time health data, enabling a more comprehensive understanding of each applicant's health status and future health risks.

This process can be integrated into manual, semi-automated or automated underwriting workflows, depending on the insurer's specific needs and capabilities.

Making the Most of the Health Data Provided by Binah.ai

The wide range of health data collected with applicant consent through Binah.ai's technology, provides insurers with deeper objective insights into real-time health status and risks. This enables smarter analysis, more precise risk assessment, and personalized premiums and services.

The table below details some of the risks and indicators made available by Binah.ai's technology, along with potential health implications associated with abnormal readings.

For the most updated list of our indicators, talk to us at info@binah.ai.

Flag Critical Health Risks with a Wide Range of Indicators

Parameter	Normal range (Age 18+)	Health issues associated with abnormal levels
Blood Pressure	Systolic: <120 Diastolic: <80	Heart attack, heart disease, stroke, kidney disease, poor cognitive function, dementia
Heart Rate / Pulse Rate	60-100 bpm	Stroke, heart failure, hypovolemia, fever
Heart Rate Variability	Age 20-25: 55-105 Age 60-65: 25-45	Stress, risk of cardiac events, oncoming sickness, nutrition and sleep patterns
Oxygen Saturation	95% - 100%	Heart disease, interstitial lung disease, COPD, anemia, ARDS, pneumonia, sleep apnea
Breathing Rate	12-20 bpm	Anxiety, fever, heart problems, respiratory conditions, including COPD, asthma, and pneumonia
Hemoglobin*	Men: 14 to 18 g/dL Women: 12 to 16 g/d	Anemia, sickle cell disease, chronic kidney disease, hemato-oncology disease, cancer, malnutrition
Hemoglobin A1c*	Normal: <= 5.7 % Prediabetes risk: 5.7-6.4 % Diabetes risk: > 6.4 %	Pre-diabetes, diabetes, metabolic syndrome, heart disease, kidney damage, eye damage, liver disease
Sympathetic Stress (Baevsky Stress)	Low - Normal	Stress, risk of cardiac events, oncoming sickness, nutrition and sleep patterns
Stress Response (SNS Zone)	Low - Normal	Stress, risk of cardiac events, oncoming sickness, nutrition and sleep patterns
Recovery Ability (PNS Zone)	Normal - High	Stress, risk of cardiac events, oncoming sickness, nutrition and sleep patterns
PRQ	5	Hyperventilation, cardiorespiratory issues
Tuberculosis Risk*	Low	Tuberculosis, pulmonary tuberculosis, extrapulmonary tuberculosis
High HbA1c Risk*	Low	Pre-diabetes, diabetes, metabolic syndrome, heart disease, kidney damage, eye damage, liver disease
High Fasting Glucose Risk*	Low	Diabetes, heart disease, kidney damage, eye damage, liver disease
Low Hemoglobin Risk*	Low	Anemia, blood loss, sickle cell disease, chronic kidney disease, hemato-oncology disease, cancer, malnutrition
High Blood Pressure Risk	Low	Heart attack, stroke, heart disease, kidney damage, poor cognitive function, dementia, pregnancy complications
High Total Cholesterol Risk*	Low	Atherosclerosis, heart disease, heart attack, stroke, peripheral artery disease, high blood pressure
ASCVD Risk	Below 1%	Heart disease, stroke, peripheral artery disease, aneurysm, kidney disease, diabetes
Heart Age	Heart age ≤ chronological age	Heart disease, heart attack, stroke, heart failure, peripheral artery disease, high blood pressure, high cholesterol, diabetes, obesity

Following the completion of the health scan and analysis of the shared data, several scenarios may arise:

Healthy Applicants | Assessing STP-Eligibility

- Applicants are asked a few simple questions about age, height, weight, and smoking habits.
- The collected health data is analyzed by underwriting models, enabling smarter and faster STP (Straight-Through Processing) for efficient decision-making. Insurers may present applicants with the most appropriate packages and offer special programs such as behavior-rewarding packages and wellness programs.

Healthy Applicants | Enrollment in Wellness Programs

- Applicants may be encouraged to join the insurer's wellness program to maintain good health.
- These programs may include support, rewards for healthy eating and activities, and points redeemable for various purchases like discounted flight tickets.
- Programs might be offered for free for a limited period, contingent on a subsequent health scan. Wellness program participants may also access one free quarterly scan or pay per scan.

Non-STP Applicants with Abnormal Biomarkers or High Risks Detected | First Triage

- After initial basic questions, if several high risks or abnormal biomarkers are identified, non-STP applicants may be asked to complete a more detailed health questionnaire or undergo an in-person medical examination.

- Insurers can then take tailored actions based on the identified risks. For example:

High Blood Pressure Linked to Lifestyle: Applicants may receive personalized pricing based on their condition.

Non-STP Applicants with Abnormal Biomarkers or High Risks Detected | Enrollment in Wellness Programs

- Simultaneously with the pricing offer, applicants may be encouraged to join a wellness program to improve their habits and potentially mitigate current risks.
- Insurers may gamify the program using health data as well as Binah.ai's wellness score to incentivize daily health scans and boost long-term engagement.
- The data obtained from health scans can be used to offer personalized support and recommendations from insurers.
- Insurers may offer personalized rewards like lower premiums for program members if subsequent scans reveal improved health indicators.



Data Privacy, Security, and Accuracy in Binah.ai's Technology

Edge-Based AI Architecture for Data Privacy and Security

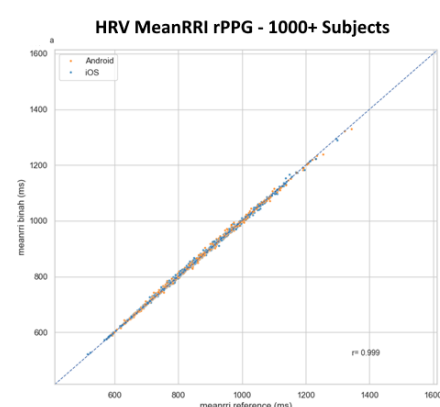
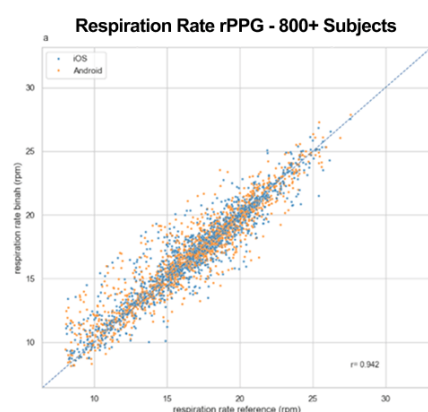
If individuals trust their insurer to handle their personal data responsibly and securely, they may be more willing to share it. This trust can be built through transparent communication, strong privacy policies, and a commitment to data security.

Binah.ai's Edge AI architecture ensures that data processing occurs locally on the user's device, putting the power in the hands of the end-users. Once the data is shared with the insurer, the insurer retains complete control over its management, significantly reducing the risk of breaches or unauthorized access. Because the solution is provided to the insurer in the form of a Software Development Kit (SDK) that supports on-device processing, Binah.ai has no access to end-user data. For continuous monitoring, results can be securely transmitted to the organization's cloud. Binah.ai is compliant with data privacy regulations like GDPR and HIPAA, ensuring smooth regulatory processes.



Robust Scientific Foundation Delivering Consistent High-Quality Performance

Led by Chief Medical Officer Dr. Naveh Tov, MD, PhD, our multidisciplinary team includes PhD experts spanning medicine, engineering, AI, mathematics, physics, and biotechnology. Our award-winning technology is rigorously validated both in-house and by independent laboratories against regulatory-approved, gold-standard medical devices (including testing by Clinimark USA, now Element, a recognized leader in clinical validation). It consistently delivers reliable results with a built-in confidence score and is ISO 13485-certified.



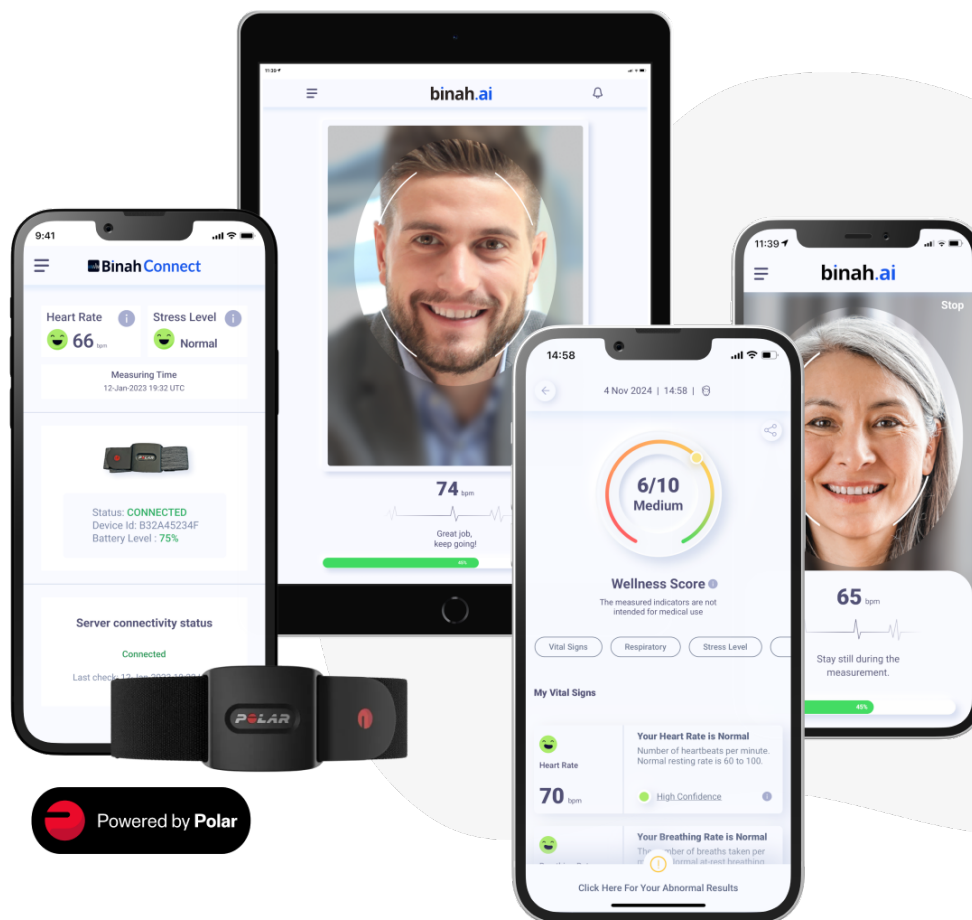
Certifications and Regulatory Approval

Binah.ai's technology is in the process of receiving regulatory approval as Software-as-a-Medical-Device (SaaMD) with FDA (USA).

Uniquely Delivering Both Spot and Continuous Checks

Our comprehensive solution enables both spot checks, conducted via 35-60-second selfie videos or continuous checks using a Polar Verity Sense™ optical heart rate sensor, enabling insurers to select the option that best suits their needs.

Ready to transform your underwriting process with Binah.ai? Contact us at info@binah.ai to request a demo or learn more.



*Binah.ai's solution is not a medical device and should be used as a self-assessment tool only. Binah SDK is not a medical product and is under continuous research and development
Users need to consult their healthcare provider before making any health-related decisions*