

Biometrics and the Three Elements of Healthcare

an Iris ID White Paper



Diagnosis: Identity Crisis

Our physical bodies define who we are. From the tips of our fingers to the color in our eyes, right down to the DNA in each of our individual cells, we are physically unique from one another, and the care and maintenance our bodies require is just as individual, regardless of our well being. Yet, while there is an indisputable connection between identity and personal health, an appropriately strong link between who we are and the treatment we receive is still absent in today's healthcare industry. And that's a problem.

Digital and paper records tied to patients only via biographical data and government documents end up filed in duplicate, mismanaged, abused and stolen, causing a great deal of pain and financial loss. Meanwhile, time-constrained medical professionals are held back from treating patients in need, slowed down by inefficient access systems that rely on passwords, PINs and physical credentials. Pharmaceuticals are at risk of theft, loss or malpractice thanks to inaccurate records and low-security cabinets. And drug manufacturing lacks adequate quality assurance during a full blown opioid crisis. In short: the healthcare sector is in the middle of an identity crisis – it needs biometrics.

Biometrics, literally the measurement of your body's unique physical traits, allows for greater convenience and security in every area of application. In the case of healthcare, biometrics can offer greater efficiency and assurance for professionals in hospitals and clinics, optimal security and accountability in the creation and storage of drugs and medicine, and a better experience for patients who can sleep easy knowing they are receiving the treatment they need without the risk of health fraud.

Thankfully, the healthcare industry is eager to adopt biometrics. But with such a seemingly complex technology in a highly nuanced market, finding the right identity solutions can be difficult. To decide on the right biometrics solution for the job, it's important to understand how identity fits into the healthcare market.

Part One: The Global Healthcare Biometrics Market

The global healthcare biometrics market is experiencing exceptional growth thanks to growing digital security concerns. One firm, Credence Market Research, predicts the market will skyrocket from \$2.1 billion to \$14 billion in 2025.

Biometrics are coming to the healthcare market at an accelerated adoption rate, applied across the three key elements of the healthcare sector – manufacturing, access control, and patient ID – with health professionals and administrators the world over is turning to biometrics in order to bring greater security, privacy, convenience, assurance and trust to one of today's most critical marketplaces.

Multiple industry reports are forecasting rapid and massive growth for the global healthcare biometrics market, which is on track to skyrocket from approximately \$2.1 billion, benchmarked in 2016, to just under \$14 billion in 2025, according to [Credence Market Research](#).

It's an outlook shared by other market research firms, with aggregated forecasts from [Grand View Market Research](#), [Visiongain](#), and [Crystal Market Research](#), and [Credence Market Research](#) placing the healthcare biometrics market in the range of \$12-14.5 billion in the next six to nine years – and all identifying the primary driver as digital security concerns.

Healthcare is a particularly attractive target for hackers and fraudsters where data theft is concerned, since patient medical records and insurance information fetch a high price on the black market, without adequate data security these hackers can get more information about a person than any financial records breached. Biometric security, when properly implemented with privacy-first best practices, makes wrongful access of sensitive data unfeasible for the criminal data brokers on the dark web.

Government efforts to modernize healthcare systems with biometrics are also helping to drive market growth. Take India's Aadhaar national ID scheme for instance, a massive biometric program in which Iris ID technology has played an integral role since its inception in 2010. Aadhaar is the world's most ambitious national ID initiative, with over one billion citizens enrolled. Managed by the Unique Identity Authori-

ty of India (UIDAI), the program allows citizens to assert their biometric identity in finance, government services, and healthcare. India's National Health Assurance Mission, which is enabled by Aadhaar, aims to provide trusted healthcare throughout the country bolstered by biometrics.

Vaccination efforts in frontier markets like West Africa, meanwhile, also rely on biometrics. Mobile biometric technology helps ensure children are receiving the proper doses of medicine, a task made easier by the fact that biometric identification does not rely on physical documents and even transcends language and literacy barriers.

Technological advancements are another driver of biometric adoption in the highly regulated healthcare space. Because of the specific demands of healthcare, both from a practical standpoint and a safety standpoint, only top-tier security solutions are viable. Until recently, the best biometrics solutions were either too difficult to implement, too expensive to deploy, or both. Thanks to industry-wide innovation in consumer devices, enterprise identity and access management, and financial services, biometric technology is now a feasible and affordable security solution for healthcare spaces.

According to the research cited, fingerprint biometrics are currently the most common biometric modality employed in healthcare markets. But thanks to the aforementioned technical innovation enabling the implementation of high-quality biometrics at a lower cost, vascular pattern, hand, and iris recognition will all grow in popularity over the forecast period, as most end users and enterprise customers gravitate towards non-contact biometric in healthcare applications. Likewise, the regional markets are expanding. North America and Europe currently have the lion's share of biometric deployments, but the Asia Pacific market is expected to grow dramatically, as is the Latin American region.

Thanks to the numerous applications of biometrics in healthcare, there is an enormous area of opportunity to be fulfilled. But it's not just protective measures stoking the demand for biometrics. Fraud has given rise to new health crises, creating an urgency in solving healthcare's identity problem.

Part Two: Biometrics Versus the Opioid Epidemic

Health fraud is directly contributing to the opioid crisis, and biometrics can help to stop it. By deploying biometrics throughout the healthcare ecosystem, irrefutable identity and access records can enable a chain of trust all the way from the manufacturing plant, through the point of care, to the rightful beneficiary of prescription substances and services.

A lack of strong identity in healthcare can be a matter of life and death, and that's not hyperbole. According to the [U.S. National Institute on Drug Abuse](#) (citing data from the Center for Disease Control), annual overdose deaths involving prescription opioids have risen from 3,442 in 1999 to 17,029 in 2017 (the most recent year for available data). While drug abuse and addiction might not seem connected to identity and access management at first, when considering recent health fraud statistics, there is a clear relationship.

According to a document published by Bass, Berry & Sims PLC, entitled [Healthcare & Fraud Abuse Review 2018](#), last year saw the Department of Justice and U.S. Department of Health and Human Services (HHS) announce the largest national healthcare fraud takedown ever recorded. The numbers are staggering: 600 individuals were charged in 58 federal courts for alleged fraud of more than \$2 billion dollars. A sizeable fraction of those charged, 165, were licensed medical professionals including doctors and nurses. And while the dollar value in losses is substantial enough to raise eyebrows, there is a public safety element to the affair as well.

"Of particular note was the pursuit of charges against those involved in prescribing and distributing opioids and other narcotics," states the review. "The takedown also aggressively targeted schemes billing government and commercial payers for medically unnecessary prescription drugs and compounded medications that allegedly were not purchased and/or not distributed to beneficiaries."

Health fraud is directly contributing to the opioid crisis, and biometrics can help to stop it. Bad prescription practices, poor recordkeeping, and doctor shopping on behalf of the patients are all exploitations of a system without the assurance of pure ID. By deploying biometrics throughout the healthcare ecosystem, irrefutable identity and access records can enable a chain of

trust all the way from the manufacturing plant, through the point of care, to the rightful beneficiary of prescription substances and services. And while the opioid epidemic as an effective illustration of why the stakes are so high in the healthcare industry, the benefits of biometrics across the three elements of healthcare are all-encompassing.

Part Three: Biometrics and the Three Elements of Healthcare

From beginning to end, the entire healthcare process is enhanced with the deployment of easy to use, secure biometrics. A culture of strong identity is key to ensuring trust is present throughout what we call the Three Elements of Healthcare.

Manufacturing

The pharmaceutical manufacturing process is often neglected in healthcare discussions, but it is the foundation of trust in the medical sector. Dealing with restricted and regulated substances that demand the highest level of quality control entails a great deal of responsibility. So being able to track identity through the extensive process of manufacturing batches of medicines and drugs is integral to quality assurance. Biometrics function in the manufacturing space by ensuring that accurate time and attendance records are kept, spaces are protected, and only those with the proper authorization are allowed to perform key tasks.

One of the most critical applications of biometrics in manufacturing concerns the use of machinery in the workplace. Regulations require accurate and extensive records pertaining to which personnel initiate and halt processes, tracking who starts or stops a machine, when they do it and why. Very large pharmaceutical concerns working with Iris ID need to process up to 600 individual authentications per day in a single plant – signing into and out of regulated processes. Biometrics offer an irrefutable level of assurance here in terms of ensuring the validity of access records while also ensuring daily processes aren't disrupted. Furthermore, a robust and properly managed identity and access management system can link license and certification information to a worker's biometric, ensuring only properly trained individuals are using sensitive machinery. And contactless iris biometrics make reg-

Biometrics have an important role to play in the three core elements of healthcare, bringing security, convenience and assurance to manufacturing, access control, and patient ID.

ulatory compliance in pharmaceutical manufacturing as easy as looking at a sensor.

Time and attendance management is another key concern in maintaining a safe and trusted manufacturing environment. Non-biometric workforce management solutions like punch cards and manual sign-in procedures are vulnerable to human error and exploitation. When an employee forgets to sign in, a gap in the attendance record means a blind spot for a safety audit, weakening quality assurance. A worse scenario, however, is the possibility of fraud offered by old-tech systems. Sharable credentials allow for time theft via the fraudulent practice of buddy punching, while stolen credentials open the opportunity for theft. Biometrics offer a compelling countermeasure against these issues.

Access Control

Medical spaces need to be protected, and biometrics offer the best level of security with an incredible degree of convenience and certitude. In hospitals, clinics and pharmacies, biometrics protect areas that are off-limits to the public, be they operating rooms, administrative spaces or drug cabinets.

The benefits of biometric access in healthcare are manifold, but one major advantage biometry brings to the table is efficiency. Healthcare professionals are time-poor, and so a reliable security system that doesn't rely on key cards that can be lost, stolen or worn out from frequent use can make all the difference in a tight hospital schedule.

Of course, there are particular areas in which access control security is of the utmost importance. In the field of nuclear medicine, for example, radioactive material used in the treatment of cancer and hyperthyroidism, as well as certain types of internal imaging, must be secured for health, safety and environmental reasons. The radiation byproducts of nuclear medicine can cause severe bodily harm if mishandled, and radioactive therapies often necessitate lengthy quarantines for irradiated patients. It's no surprise that nuclear medicine is subject to intense regulatory and licensing legislation on behalf of organizations like the U.S. Nuclear Regulatory Commission. Biometrics are the best possible way to

be sure only the specialists and their patients come into contact with these high-risk lifesaving materials while ensuring best practices and compliance.

Pharmacies, on the other hand, are trusted with the storage of high-value substances that are not only restricted and expensive, but addictive and dangerous if not dosed in accordance with a doctor or clinician's instructions. Biometrics are a more secure alternative to PIN and key-based drug safes, which can be accessed by thieves and fraudsters. With biometrics on guard, only authorized pharmacists can handle the medicine that keeps us healthy.

When it comes to the storage of medical substances, meanwhile, biometric security can be paired with automatic access records, giving unimpeachable documentation regarding who accessed restricted substances, and at what time. With biometrics, trust comes bundled with security and convenience.

Patient ID

Biometric patient ID ensures individuals seeking care are properly identified and treated in accordance to their needs. A misidentified patient record can lead to the misprescription of an allergen, or other ineffective/dangerous treatments, and it can also leave the door open to fraud. Electronic health records and e-prescriptions linked to a person via their unique biological traits means no more mixups in the doctor's office or at the dispensary.

What's more: biometric patient ID enables fast identification when time is of the essence and the person in need of care may be unable to provide documentation. In emergency situations with unconscious, disabled or undocumented patients, a biometric scan can mean the difference between effective treatment and serious medical challenges.

There are financial benefits to biometric patient ID as well. A strong foundation of assured identity, which biometrics provide, prevents financial misappropriation by blocking insurance fraud and minimizing clerical errors like duplicate files and patient misidentification. With biometrics linking a patient to their proper prescription, medical history, and insurance information, they

are sure to receive the proper care with the appropriate benefits along with the peace of mind they deserve.

As healthcare continues to go digital and new innovations in mobility enable patients to receive long-term remote care, biometric patient ID ensures sensitive personal data remains protected. Just as it does in professional medical spaces, biometric patient ID brings security, convenience and privacy to the home.

Part Four: The Iris Advantage

Iris biometrics are considered among the most convenient and accurate of modalities, able to positively authenticate a user's identity in the blink of an eye.

Accuracy, efficiency, and security are the key considerations when it comes to biometrics in the medical space, and while all biometric modalities offer those benefits to some extent, iris recognition is best suited to all three elements of healthcare.

Iris biometrics technology deals with the colored ring in a person's eye. A user is enrolled in a biometric system by having their irises scanned. The captured image is transformed into a numerical template that cannot be reverse-engineered. After enrollment, when a user scans their eyes to access a restricted area or to sign in for work, their irises are compared to the data in the template. If the data matches, then authorization is granted.

The details of the iris are elegant and unique to every person on the planet, and unlike fingerprints, they don't leave physical markings that can be lifted and copied for presentation attacks in which a false artifact is used to fool a biometric system. Furthermore, iris biometrics are considered among the most convenient and accurate of modalities, able to positively authenticate a user's identity in the blink of an eye.

The specific demands of the healthcare sector favor iris recognition because it is a contactless modality, meaning it can scan a user for authentication from a distance. In practice this makes iris biometrics ultra-hygienic, preventing the spread of communicable diseases that propagate by human touch. The contactless nature of iris recognition also means that healthcare professionals can authenticate without removing gloves or respiratory masks.

In healthcare manufacturing, access control and patient ID, iris recognition offers the best user experience and the highest levels of accuracy and trust. Iris is the answer to healthcare's identity crisis.

Part Five: The Biometric Power of Iris ID

“We have been servicing the healthcare vertical with iris technology for a very long time in the areas of access control and secure identification for access to laboratories and R&D centers.”

MOHAMMED MURAD,
Vice President, Global Sales,
Marketing and Business
Development, Iris ID

Iris ID is the leading supplier of sixth generation iris biometrics products that serve the demands of the healthcare sector. All of Iris ID's biometric products offer maximum customizability while providing the laudable benefits of iris recognition. With a comprehensive hardware and software suite, Iris ID is ready to bring biometrics to manufacturing, access control and patient ID in the healthcare sector.

Iris ID's IrisAccess product line is a flexible biometric solution that is easy to deploy and ideal for healthcare applications. Designed to integrate easily with existing security infrastructure, IrisAccess is already compatible with most of the leading access control panels and other commonly used security platforms. It can operate as a standalone system or as part of a multi-factor security solution for high risk applications that require scalable security.

Iris ID's iCAM7100 devices bring the benefits of reliable contactless authentication to access control and workforce management. Proven to reduce payroll and administrative costs, iCAM7100 devices eliminate time fraud and increase productivity with accurate records while also being able to function in an access control capacity. Audio and video prompts enable intuitive iris enrollment and identification, ensuring users benefit from the signature speed and convenience of contactless biometrics.

To learn more about the right Iris ID solution for your purposes, visit IrisID.com

The Era of Biometric Healthcare

The era of biometrics-enabled healthcare is here. The market demands strong biometric authentication to put a stop to fraud, deliver efficient patient care, and return trust to the medical profession. Thanks to its unique traits, iris recognition is best suited for deployments in the health space – for workforce management in manufacturing, access control in hospitals and clinics, or patient ID wherever individuals seek treatment – and leading innovators like Iris ID have made biometrics the easy answer to healthcare’s identity crisis.

About Iris ID Systems Inc.

Iris ID Systems Inc. has been active in iris recognition research, development and production since 1997. The company’s IrisAccess® is the world’s leading deployed iris recognition platform used in thousands of locations daily authenticating the identities of millions of people. More public and private organizations look to IrisAccess for iris-based authentication than to all other iris recognition products combined. For more information, visit www.irisid.com