2020

STATE OF GEORGIA'S DIGITAL HEALTH ECOSYSTEM

TAG | Digital Health

Driven by Innovation
Proven by Performance

EXECUTIVE OVERVIEW

Georgia is home to 200 Digital+ Health companies that are innovating healthcare in a variety of ways - from healthcare software to medical devices to services. With an estimated $20.7B economic impact in the State, and $11.8B in estimated direct revenue Statewide, Digital Health is helping drive Georgia's economy[1]. But the impact is broader. Through the advancement of new Digital Health solutions developed in Georgia, healthcare systems and physicians nationally are better able to screen, diagnose and collaborate on the delivery of healthcare in new ways improving access to healthcare and improving health outcomes throughout the United States.

Examples of Digital Health solutions developed and managed by Georgia-based companies includes solutions in the areas of population health, revenue cycle management, patient engagement, imaging, telehealth and remote monitoring, cybersecurity, care coordination, consumer healthcare apps and more. These successful businesses will continue to create a major impact nationally as they grow. And the Digital Health economy in Georgia will continue to support the launch of new companies to address new challenges.

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HEALTHCARE INNOVATION LANDSCAPE IN GEORGIA

In the early 2000s, healthcare in the United States was in crisis. Per capita healthcare spending was the highest in the world and growing at a 4-5% rate, yet the health of the US population was average and not improving. In 2009, President Obama signed the Health Information Technology for Economic and Clinical Health (HITECH) Act into law to promote the adoption of health information technology thereby ushering healthcare into the digital era. The HITECH Act was enacted to drive the adoption of electronic health records (EHR) with the expectation that, once digitized, medical records could be analyzed to identify approaches to improve health outcomes across the population while improving privacy and security (HIPAA). The intent of the law was to engage patients to manage their own healthcare and thereby improve the coordination of care. This Act, combined with the subsequent Patient Protection and Affordable Care Act (ACA) and other related laws, drastically changed many aspects of healthcare to include delivery, business models and payment models that drive medical provider and patient behaviors, and patient (consumer) engagement through the use of technology.

While the Digital Health industry in Georgia has been a major industry for decades, the impact of these national forces has generated incredible growth since 2010. As the employment growth chart in the "By the Numbers" chart in this report show, there are 200+ Digital Health companies in Georgia, with over 44,000 jobs, representing a 31 percent increase over the course of nine years.

Many factors contribute to making Georgia a Digital Health innovation hub;

- 200+ Digital Health companies operating in Georgia as of this report (Dec. 2019). See list in this report.
- A long history of leading institutions in healthcare, global health and healthcare technology:
  - The CDC, the world's leader in global health, has been headquartered in Atlanta since the 1950's and its precursor was initially located here in the 1940's.
  - HIMSS was founded on Georgia Tech's campus in 1960 with an incredible amount of healthcare technology expertise in the state at that time.
  - HBOC and McKesson were major players on the national healthcare technology landscape since the 1970's, with thousands of technology alumnae starting other Healthcare Information Technology ("HIT") companies in metro Atlanta.
- A vibrant Innovation Community, with incubators and accelerators around the state fostering new Digital Health, medical and medical device startups. Two major institutions are:
  - ATDC (Atlanta Technology Development Center) was founded on Georgia Tech's campus in 1970 and is widely regarded as one of the most successful incubators in the nation. Today, 50 of its 180 total startups (28 percent) are focused on healthcare, medical devices and Digital Health technology.
  - ATV (Atlanta Technology Village), founded in 2012, has 30 of its 300 startups and companies (10%) focused on Digital Health.
- A robust Healthcare Technology Community including Professional technology organizations, cross-industry partnerships, Accountable Care Organizations (ACOs) and a vigorous Digital Health startup community.
- Collaborative Industries - Georgia has an advantage over other states in that it is also a national leader in other technology industries such as mobility, Fintech (financial technology), logistics and information security. This creates opportunities to combine technologies for the purpose of creating hybrid solutions; examples include mobile health, revenue cycle management and healthcare asset management tracking.
- A strong workforce - Nurtured by excellent local universities to include Emory University, Emory School of Medicine, Georgia State University, Georgia Institute of Technology, Kennesaw State University, Mercer University, Morehouse College, Morehouse School of Medicine and the University of Georgia.
- Cooperative Research and Development - Often produced from partnerships between healthcare systems, technology providers, businesses, payors and academia.

There is a healthy spirit of collaboration within the healthcare technology community in Georgia, and

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DIGITAL HEALTH COMPANIES

3M Health Information Systems
3M M*modal
4th Source, Inc.
Abbott (Alere Health LLC)
Accel Healthcare Resources LLC
Across Healthcare
AdvancedMD
Alliant GMCF [Part of Alliant Health Solutions]
Alliant Health Solutions
Allscripts Healthcare Solutions, Inc.
Appian
Athena Health
Autocruitment
Axiom Corporation
Axway
Azalea Health Innovations, Inc
Barco Inc
Bintellica, LLC
BioIQ
Bluecat Networks Inc
Booz Allen Hamilton
Bottomline Technologies
Brightree LLC
Cannon Medical Systems
CardioMEMS (Abbott)
CareLogistics
Carematics
Carestream Health
Centerpoint IT
CGI Group
Change Healthcare
CIOX Health
Clean Hands Safe Hands
ClearWave
Clinigence
Clockwise.md
Cloud vault Health
Coalition America
Coker Group
Compliance 360 INC
Convergint Technologies, LLC
Core Management Resources Group
Corus360
Cotiviti
Craneware
CSRA (GDIT)
Desir Group Executive Search
Diamond Computing
Document Plus Technologies
DR Wanted
DXC Technology
Ebix Health
eClinicalWorks
Edge Solutions
Elekta
Emory Healthcare
EMS Technology Solutions - Operative IQ
Etegrity Health Solutions Inc
ExamWorks Clinical Solutions
Experity (DocuTap and Practice Velocity)
FairWarning, Inc.
GE Healthcare
GENEX Services Inc
Georgia Health Information Network
Georgia Partnership For Telehealth
GHX
Global Emergency Resources
Gozio Health
Grant Thornton LLP
Greenway Medical Technologies
HCL America, Inc.
HealthAsyst
Health Catalyst, Inc.
Healthcare Data Experts
Healthgrades (previously Influence Health)
HealthLink Dimensions
HealthNovation
Healthpac Computer Systems
HealthSystems
HealthSystems Resources
Healthyou
Hewlett-Packard (HP)
HIMformatics LLC
HMS
Hola Doctor
HyBridge Solutions
ImedX
Immucor Inc
Influence Health (HealthGrades)
Info Pro Group
Infor Global Solutions
Infosys Public Services
Ingenious Med
InHealth Record Systems
Inovalon
Interactive Health Network LLC
Intermed Systems Inc
Intrado (was West Corporation)
Jackson Healthcare Solutions
Jtech
Jvion
Kaiser Permanente
Karna
Kaufman, Hall & Associates, Inc
KaZee Inc.
KGS
L7 Technology Partners
Legacy Data Access, Inc.
LexisNexis
Liaison Healthcare
Liquid Hub
M*Modal (3M)
Maestro Strategies
McKesson
MD Solutions Inc
MED ASSETS-PRECYSE
Med Easy Software
MediBase group Inc.
Medical Asset Management
Medical Management Associates Inc
Medicat LLC
Medicus IT
Medipro
Medipurpose
MediStreams
Meditech
Meditology Services
Microsoft (For Healthcare)
Monocle Health Data
NASCO
National Electronic Attachment, Inc.
National Research Corporation
Navigant
NCR Health
NEOS Technologies
NextGen Healthcare
NIIT Technologies
North Highland Company
Northrop Grumman
NorthStar Healthcare Consulting
NRC Health
nThrive
NTT Data, Inc.
Nuance Communications
Nuesoft Technologies
Onecare
Optum Insight
Oracle
Parallon
Patientco
Payspan
PharmaCentra LLC
Philips Healthcare
Premedex
Premier Anesthesia
Presidio Networked Solutions
PricewaterhouseCoopers
Primus Software Corporation
Procare RX
PURSUANT HEALTH
Qgenda
QUALITY SYSTEMS, INC/NEXT GEN HEALTHCARE
Quality Technology Services
RelayHealth (Mckesson Pharma)
RightPatient
Rimidi
ROI Healthcare Solutions
SAI Global
Saince
SAS

PUBLIC DIGITAL HEALTH COMPANIES

Saviance Technologies
Scimetrika
SecureWorks Inc.
Sharecare
Shree Partners, LLC
Siemens Healthineers
SimpleC, LLC.
SPH Analytics
Strategic Systems & Technology Corporation
Streamline Health Inc.
Summit Tech Consulting
Surgical Information Systems
Syntermed
Teradata
Tier3MD
Touchpoint Medical
TruCode
UYS Inc
Varian Medical Systems
VendorMate (1)*
Vensai Technologies Inc.
Vizient (MedAssets)
VMware
Waystar (Navicure)
Web MD
Whitty Apps LLC
Xerox State Healthcare, LLC
Zelis

3M
Abbott (Alere Health LLC)
Maximus
Allscripts
Appian
AthenaHealth (ATHN)
Axway
Booz Allen Hamilton
Bottomline Technologies
Cannon Medical Systems
CGI Group
Change Healthcare
Computer Sciences Corporation (DXC.Technology)
Craneware
DXC Technology
Ebix Health
Elekta
GE Healthcare
HCL America, Inc.
Health Catalyst, Inc.
Hewlett-Packard (HP)
HMS
Infosys Public Services
Inovalon
KGS
Liaison Healthcare
M*Modal (3M)
Maximus - Acentia (1)*

McKesson
Mercer
Microsoft
National Research Corporation
Navigant
NCR
NextGen Healthcare
NIIT Technologies
Northrop Grumman
NTT Data, Inc.
Nuance Communications
Oracle
Philips Healthcare
Presidio Networked Solutions
PRGX
Quality Technology Services
SecureWorks Inc.
Siemens Healthineers
Streamline Health Inc.
Teradata
Varian Medical Systems
Verizon
Web MD
Willis Towers Watson
Xerox State Healthcare, LLC

GEORGIA'S ROBUST HEALTHCARE TECHNOLOGY COMMUNITY

Georgia has a very healthy healthcare technology community with more than 200+ Digital Health companies listed above. It also has a number of other healthcare and healthcare technology organizations and universities who support healthcare technology in various ways.

Centers for Disease Control and Prevention
Emory University
Georgia Bio
Georgia Hospital Association
Georgia State University
Georgia Tech
Health Connect South
HIMSS Georgia Chapter
Institute for Healthcare Information Technology (IHIT)
Kennesaw State University
Metro Atlanta Chamber's BioScience Council
Morehouse School of Medicine
SEMDA
TAG Digital Health

NEW BLOOD PRESSURE APP FROM 32ND STREET MEDIA

Hypertension is one of the most common chronic diseases in adults. It has been recognized as a major risk factor for many diseases, such as renal failure, heart disease, and stroke. Research states how important it is to encourage patients' involvement in controlling their blood pressure. 32nd Street Media, LLC developed a blood pressure app, known as :30bp©, to improve the management of hypertension of individuals and communities through technology, research, and education. This mobile app has the potential to facilitate and optimize patients' self-management by integrating health care with everyday life by delivering and collecting health information and services in a convenient, accessible and interactive mode.

The Challenge

High blood pressure, the silent killer, is pervasive in Atlanta: nearly 1/3 of residents (over 709,000 people) have been diagnosed with hypertension and nearly 20% of them are not controlling it. Atlanta clinics that treat minority and economically disadvantaged residents report that hypertension is the most common chronic condition their patients suffer from, but nearly half of their patients are controlling it, keeping it below 140 mm Hg/90mm Hg. Fortunately, research demonstrates that consistent care and individualized coaching can transform blood pressure outcomes long-term.

Solution

Adults at high-risk of hypertension may be required to visit their doctors every two weeks. We're working with healthcare providers to educate staff and gain patient adoption of :30bp© to manage their blood pressure on a daily, biweekly or weekly basis. Healthcare providers will use data analytics to track results to help them prescribe treatments for patients. We encourage users to use a blood pressure cuff to get accurate readings. App is available in Apple Store for IOS users and Google Play Store for Android users in English and Spanish.

Here's links to our information:
Click-on link to download app:
http://32ndstreetmedia.com/30bp/

Review

"Simple, easy to use. Does just what its suppose to: log your blood pressure readings." Jeff Boyd, Software Engineer

Continued from page 2

in particular within the Digital Health ecosystem. An an example of innovation through partnership is The Georgia Cyber Innovation and Training Center, created in 2017/2018 as a partnership between the State of Georgia and the US Department of Defense (DoD). Georgia's investment of $50M and DoD's investment of $2.1B is building a vital infrastructure to support the advancements of information technology in healthcare. This innovation center focuses on fighting cyberwarfare crimes by developing the next generation of cyber workforce through real-world practice, education, public-private collaboration, and interdisciplinary research.

Disruptive Technologies

The key trends in Georgia's Digital Health community reflect many national trends while taking the lead in others. For instance, Georgia Digital Health companies are building solutions to address concerns in security, interoperability, population health, revenue cycle and patient engagement. Georgia's Digital Health innovators are currently focusing on many areas of disruption, four of which are highlighted in this report - Artificial Intelligence/ Machine Learning, Blockchain technology, Telehealth and Patient/Consumer Engagement.

Blockchain Technology

Blockchain is a form of Distributed Ledger Technology (DLT) which has no central point of failure. It requires a peer-to-peer network and a consensus algorithm to ensure replication across shared nodes or "blocks", thereby being "trustless" and secure. It is a technological transformation which is being utilized in many industries, including healthcare, to radically change how business is transacted. Private and public blockchain use cases include tracking and transferring money, managing medical device inventory, processing healthcare claims, conducting

BY THE NUMBERS

Digital Health Technology Industry
Georgia, December 2019

TAG | Digital Health

INDUSTRY DEFINITION

There are 200+ Digital Health companies in Georgia according to the Technology Association of Georgia (TAG). TAG compiled a list of companies applying technological advancement to the healthcare sector, and each figure reported here is a total for these identified companies' operations in the State of Georgia.

INDUSTRY HIGHLIGHTS

There are over 44K jobs in the Digital Health industry, which has grown from 34K in 2010. The industry has a $20.7B economic impact to the State of Georgia and $11.8B in estimated statewide revenue. Four of the top five technical occupations in the industry have seen double digit growth since 2010. Disclosed venture capital funds total $328M through 39 deals

Employment[3]
44,578

State Wide Est. Economic Impact[2]
$20.7B

Top 20 Companies Est. Revenue (GA)[2]
$9.8B

Venture Capital Deals[3]
39

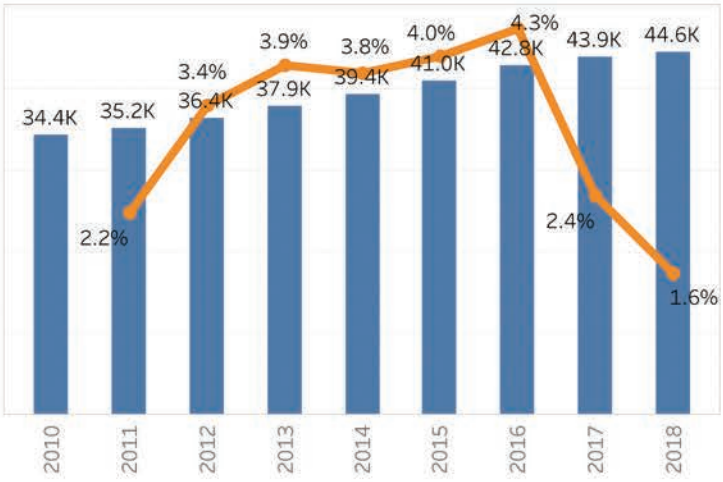
Companies[5]
200

State Wide Est. Revenue[2]
$11.8B

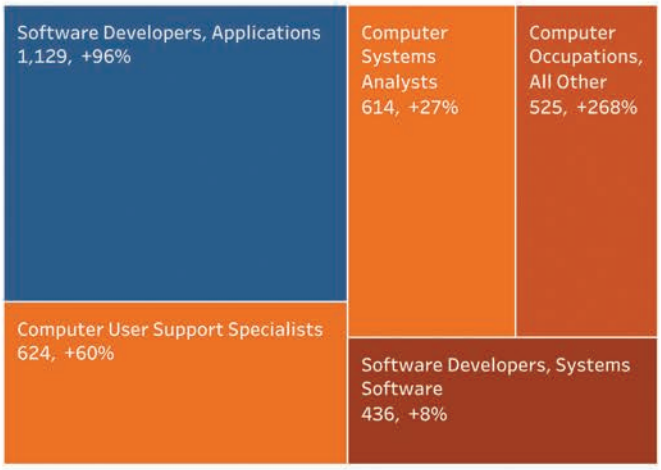
Top 20 Companies Est. Revenue per Person(GA)[2]
$277K

Disclosed Venture Capital Raised[3]
$328M

Employment, 2010-2018
& Year-over-Year Growth (%)[4]



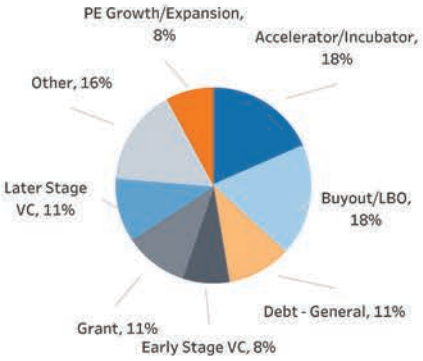
Top 5 Technical Occupations
Number of Jobs; Growth since 2010 (%)[4]



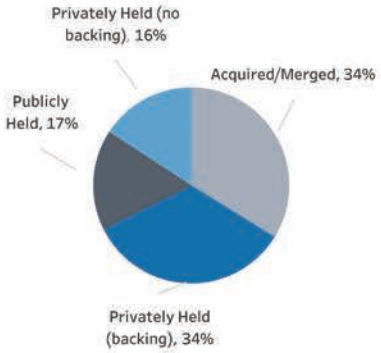
Top 20 Employers
Alphabetical Order[1]

Allscripts Healthcare	Kaiser Permanente
Athena Health	McKesson
Booz Allen Hamilton	Microsoft (For Healthcare)
Change Healthcare	NCR Health
CIOX Health	North Highland Company
Emory Healthcare	Oracle
Hewlett-Packard (HP)	Parallon
Immucor Inc	Philips Healthcare
Infor Global Solutions	PricewaterhouseCoopers
Infosys Public Services	SecureWorks Inc

Venture Capital Deals by Type[3]



Companies by Ownership Status[3]



Sources
[1]Quarterly Unemployment Insurance Match Data
[2]Center for Economic Development Research, Georgia Institute of Technology, IMPLAN Model of Georgia
[3]Advanced Technology Development Center, Georgia Institute of Technology, Pitchbook
[4]EMSI
[5]Technology Association of Georgia

Georgia State University
Kennesaw State University
Georgia Tech Center for Economic Development Research

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post-financial settlements and utilizing "smart" insurance contracts. Blockchain, AI and IoT are widely considered as key steps in the march toward building a secure and efficient digital society, where objects and people are connected and interact through communication networks. This technology presents one of the most important drivers for the implementation of "Industry 4.0" and currently the combination of AI+BC or IoT+BC is prevalent in the HC marketplace.

Blockchain healthcare use cases are announced regularly, and, as a result, the healthcare industry will be radically changed. Some players and processes in the healthcare system may well be disintermediated. Successful use cases of blockchain in healthcare include: tracking consents in clinical trials, managing the pharma supply chain ($200B lost to counterfeit fraud per year), credentialing healthcare providers, establishing self-sovereign identity tracking, managing healthcare data exchanges, providing health insurance, and running clinical trials, all of which are expected to see major disruptions in the coming years.

Blockchain is also being leveraged to increase security for personal health record data management. The ability to access personal health records by healthcare professionals from various sources is necessary to support value-based care. With this goal, startups and companies in Georgia are leading the way to improve process integrity, auditability, and efficiency through the use of blockchain and smart contracts i.e. a trusted private blockchain. At the Atlanta Technology Development Center ("ATDC"), many of the 50 Digital Health and/or medical-related startups are running on some form of decentralized ledger technology.

Change Healthcare, with a regional office in metro Atlanta, pioneered the use of enterprise-scale blockchain technology designed to increase the speed of claims lifecycle management. The network's blockchain makes it easier for payors and providers to accurately and securely process claims, thereby creating greater efficiencies and reducing costs. The network's success has spurred their continued investment in blockchain innovation by creating a "smart contract system" for healthcare. Smart contracts form the basis of a private blockchain and will allow health plans to automate the claims transaction process with self-executing business rules embedded on the blockchain.

Cognizant, also with a regional office in metro Atlanta, has completed extensive research and innovation with blockchain. With their network of partners, they are utilizing blockchain within the health data sector in order to accelerate security and time to market.

The Georgia-based CDC is testing blockchain, in collaboration with **Consensys** and **IBM**, targeting the opioid crisis in the US, tracking supplies and offenders. Blockchain technology can also be a means of collecting health worker's data from siloed systems prior to deployment of **CDC** personnel to various regions worldwide where obtaining individuals with the right qualifications, medical clearance, vaccinations, passports and visas are

imperative and time-sensitive. The CDC has a total of 16 blockchain projects under testing and consideration with several corporate partners.

The ability to share a patient's health record between providers across healthcare systems is a serious challenge as siloed EHRs are the central repository for patient information in a medical practice. **Certara's** accelerator group, OpenPharma, located in midtown Atlanta is working to address this issue by partnering with Saavha to offer a blockchain-based, interoperable solution for records exchange using the Fast Healthcare Interoperability Resources (FHIR) data standards and blockchain technology. OpenPharma's Blockchain on FHIR will attempt to ameliorate many of these barriers by using unique identifiers linked to the patient's voice - rendering inconsistencies in identifiers such as names, birthdates or addresses a non-issue.

Artificial Intelligence / Machine Learning

Another disruptive technology is AI or artificial intelligence. The objective of analytics, and specifically AI, in the clinical setting is to empower the provider by generating more precise diagnoses and treatment strategies individualized to the patient. Medical providers can then put real-time knowledge to use creating customized healthcare strategies and care plans using best practices. The use of AI will help facilitate precision medicine, accurate diagnostic imaging, drug discovery/ development and genomics.

Accessing data and making good use of it is crucial to improving outcomes of care. Georgia is home to **Jvion**; a leader in predictive analytics for preventing negative health outcomes[3]. With one of the largest client bases in healthcare Artificial Intelligence (AI), Jvion's AI and machine learning engines are able to recognize patients who are on a high-risk trajectory and recommend interventions to reduce risk and potentially save lives[3].

Among the biggest contributors to the high cost of healthcare nationally are the transactions between payors, providers, and patients. Two Georgia-based companies, **Change Healthcare** and **NThrive**, are using AI and machine learning (ML) to identify inefficiencies within the healthcare system helping to reduce costs and improve outcomes. These companies are using AI-infused software to improve revenue cycle management, reduce claims denials and identify specific patient populations.

Telehealth

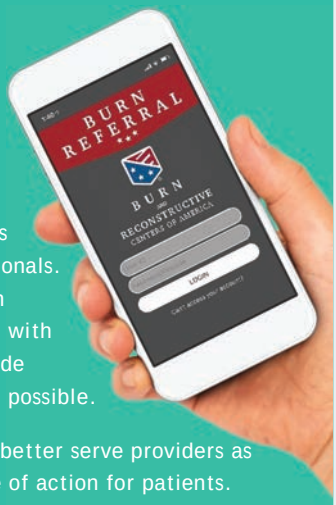
The need to cost-effectively provide access to quality healthcare for people in rural and disadvantaged areas is a major issue in Georgia. Telehealth is a reliable solution for addressing complications of patients in areas of high acuity

(e.g. critical care units), as well as providing assistance with time-sensitive treatment decisions for emergencies, such as stroke care. **REACH Health** is an excellent example of a Georgia company that developed a solution to address strokes in rural areas in Georgia and is now providing its solution nationally. Acquired by **InTouch Health** in 2018, REACH Health has a division in Georgia. Telehealth solutions provide the ability for patients to connect to medical experts, anytime and anywhere, for a multitude of medical concerns. Importantly, telemedicine helps address challenges by the physician shortage and the equally challenging geographic maldistribution of doctors.

Eagle Telemedicine partners with hospitals to augment physician coverage, increase services to

NEW BURN APP IMPROVES TIME TO TREAT BURN PATIENTS

Burn and Reconstructive Centers of America is dedicated to providing immediate, quality care, and understands the importance between the time of injury and treatment.



Thanks to the BRCA Call Center, our providers are always available for consultations, referrals or transfers, maintaining 24/7 communication with providers and other healthcare professionals. Introduced this year, the Burn Referral App works in tandem with the BRCA Call Center to provide world-class care as quickly as possible.

The burn app was created to better serve providers as they seek out the best course of action for patients. Password-protected and AES 256-bit encrypted, the app offers quick, simple and secure referrals directly from providers' smartphones or tablets.

BRCA's Burn Referral App enables secure images to be sent between providers to determine the best course of action in a matter of minutes.

The process follows three steps and brings HIPPA-compliant consultations and transfers to wherever healthcare providers and first responders are located. The burn app offers an opportunity for the best patient outcomes before they are brought to a burn center.

Since its rollout in January 2019, the Burn Referral App has had over 350 healthcare providers registered. The app will continue to be introduced across the country, with the goal of the app to help providers deliver the best care possible to their patients.

their communities and improve patient care. They bring the specialist to the patient, rather than transporting the patient to the specialist, which is especially effective in rural settings.

Azalea Health is another Georgia-based technology firm working with rural health systems nationwide. Azalea Health was the first EHR to fully integrate telehealth functionality into its solution. Their HIPAA-compliant functionality allows healthcare providers to remotely interact with patients, facilitate care management and revenue cycle, and deliver the convenience of service without a delay in care.

Disruptive Business Models

Disruptive technologies have been major drivers of change over the past 10 years and will drive even more change over the next 10 years. However, a larger source of disruption over the past 10-15 years has been challenges to and changes within healthcare business models. Examples include the rapid growth of ambulatory centers, development of specialized ambulatory facilities (e.g. imaging services), the rise of "Minute Clinics" in drugstores, requiring healthcare systems and physicians to share patient data with consumers, the creation of ACO's (Accountable Care Organizations), the move from Fee-for-Service pricing to Value-Based pricing, and the rise of Home Healthcare and Telehealth services.

Each of these changes require new technology, data strategies and tools, and security protocols to support the changes being implemented. Georgia has dozens of companies at the forefront of technological innovation in these areas. A few companies are highlighted here.

Retail Medicine

Healthcare delivery has undergone major changes over the past 15 years. Initially there were many ambulatory settings for patients to get their healthcare needs met, without going to hospitals or doctors offices. Then drugstores (e.g. CVS, Walgreens) created small clinics onsite, and Walmart added eye clinics in their stores. Currently, Walmart and Target are opening healthcare stand-alone clinics, bringing the promise of access to healthcare to millions of people in rural settings. Given the rural doctor shortage and the financial challenges of rural hospitals, this model fills a major gap in healthcare coverage.

With pharmacies, mass merchandisers and "Doc-in-the-Box" retailers competing directly with physician offices and healthcare systems for the consumer healthcare dollar, there now exists a very competitive healthcare retail landscape. As **Walmart** opened its first healthcare clinic nationally in Dallas, Georgia this fall and all the

ACADEMIC INSTITUTIONS SUPPORTING DIGITAL HEALTH

The state of Georgia and the city of Atlanta have gained national prominence among the leading forces in technological and digital innovation. Home to a large number of technology companies and holding one of the most significant IT employment clusters, Atlanta has earned the title of the Silicon Valley of the South. Atlanta's transformation into a major technical hub has been, in part, driven by a steady supply of high-tech talent.

Regarding Digital Health, the State of Georgia has experienced dramatic job growth over the past 10 years, including sectors at the convergence of healthcare and other industries. Those industries include Finance, Mobility, Technology and Informatics. The academic institutions in Georgia supporting workforce initiatives in digital healthcare include Kennesaw State University, Georgia State University, Georgia Tech, the University of Georgia, Gwinnett Tech and Emory University.

Kennesaw State University

Kennesaw State's Master of Science in Healthcare Management and Informatics (MSHMI) is an interdisciplinary program affording students the opportunity to get a holistic understanding of the inter-dependencies of healthcare practices, technology, data analytics, and informatics skills. Students also develop management and conflict-resolution skills through the program's partnership between academia and industry . The MSHMI program is cohort based and offers classes in hybrid and online format to accommodate the needs of the working professionals.

Georgia State University

Georgia State's Health Informatics program combines healthcare and information sciences to prepare students to take jobs to improve the delivery of and management of healthcare. The Lewis College offers an interdisciplinary bachelor's degree and a graduate certificate. The Bachelor of Interdisciplinary Studies (B.I.S.) in Health Informatics program started in the fall of 2013 with the Graduate Certificate in Health Informatics in the fall of 2016. GSU students are trained to fill the need for health informatics professionals who can serve as a liaison between IT professionals and clinical end-users of technology.

Georgia Institute of Technology (GA Tech)

Georgia Tech's Center for Health Analytics and Informatics program combines academic researchers in computing and the biosciences, practitioners familiar with the challenges of the medical community, and engineers and data scientists with expertise in building and operating secure networks tapping massive databases.

Health Informatics researchers at Georgia Tech partner with public and private-sector organizations to develop and apply transformative technologies to connThese technologies help clinicians track the latest research shortening the time to move health care advances into practice.

University of Georgia

The BioInformatics and Health Informatics program at the University of Georgia conducts leading edge research to support EMRs (electronic medical records) and improving quality of care. They do this by addressing the technical issues of information integration and protocol support (clinical pathway) using Semantic webs and database management approaches.

Research in BioInformatics involves algorithms, models, visualization, data integrations, information systems (including mining and knowledge discovery) and high-performance computing for computational problems in biology through collaborations with biologists.

Gwinnett Technical College

Gwinnett Tech's Health Information Management Technology (HIMT) program provides a strong foundation of skills used to manage technical systems and keep vital records for healthcare systems. As data collection, analysis and dissemination has become vital to the healthcare and bioscience community, demand for robust, versatile information systems will continue to grow. HIMT professionals work across a wide variety array of roles from analysts to project managers to healthcare system management and governance roles.

Emory University Continuing Education Program for Up-Skilling

For healthcare and technology professionals interested in developing additional skills to work in healthcare technology, Emory University offers a program to develop those skills partnering with the Consort Institute. The Consort Institute runs a multitude of up-skilling programs for Emory University focused on the fields of data science, business intelligence, big data analytics, data engineering, cybersecurity, machine learning and artificial intelligence. Unlike regular academic programs, these these offerings are conducted in an intensive delivery format on Saturdays ranging from 8-12 full-day sessions.

players mentioned above have active projects in the state, the state has become "ground zero" in this retail battle. Each of these healthcare retailers have technological challenges unique to their businesses in addressing issues such as live scheduling, care coordination, RX prescribing, patient management and more.
Georgia-based Digital Health companies are answering this challenge by providing technological solutions to meet their needs. For example, Walmart is utilizing **Sharecare's** platform and consumer app to support the medical provider and healthcare consumer in Walmart Clinics.

Accountable Care Organizations

The Centers for Medicare and Medicaid Services (CMS) defines an Accountable Care Organization (ACO) as "an organization of health care practitioners that agrees to be accountable for the quality, cost, and overall care of Medicare beneficiaries who are enrolled in the traditional fee-for-service program who are assigned to it." The ACO model, through focus on quality metrics and incented by alternative payment models, is expected to help shift the current high cost, average care environment. In addition to Medicare and other payors, ACOs are accountable to patients for the quality, appropriateness and efficiency of the health care provided. Patients also play a key role by engaging in their own care and adhering to preventative care guidance.

Recognizing an opportunity to move towards value-based care and to facilitate collaboration, **Emory Healthcare** has partnered with Walmart to offer Accountable Care Organizations (ACOs) to Walmart employees in Georgia. Walmart employees who opt-in to the Emory ACO will be able to receive preventative medicine for free with access to more than 2,000 providers in Emory's network[4].

Home Healthcare

Innovations in healthcare delivery aren't limited to new methods of delivery or new software. Companies such as **MedZed** are combining traditional methods of delivery with new technologies to reach patients where they are most comfortable - in their own homes[3]. MedZed provides house calls for sick children outside conventional office hours. A nurse visits the patient's home, conducts a physical exam and relays the information to the physician via video chat. The physician then provides the diagnosis and electronically submits a prescription if needed. The combination of convenience and affordability, with an average cost of a home visit around $99, makes this an affordable option.

Consumer Engagement

Healthcare consumers are beginning to take healthcare into their own hands and are making their healthcare decisions, while coordinating with their doctors when needed. This is a departure from traditional healthcare where the "patient" waits for the doctor to tell them what to do. This movement from a patient-centered system to a consumer-centered system is causing major disruption in the industry. A consumer's medical decision-making processes require new data, workflows, security and technology to support it. Digital Health companies and many healthcare providers are at the forefront of changing how healthcare consumers and doctors interact in this newly developing world.

According to the CEO of **Welltok** (Roswell, Ga), patients and consumers differ in one simple way: patients receive care while consumers make choices. "Engaged consumers are more accountable for their overall health and healthcare costs."

Two Georgia-based companies have embraced a consumer healthcare centric approach that

differs from the historical patient/physician centered delivery model. **BioIQ** and **Welltok** are personalizing healthcare by segmenting the population into demographic and psychographic segments and leveraging those insights to personalize messaging for the healthcare consumer. They have created vendor neutral solutions for health plans and employers to close care gaps, increase immunization rates and identify risk determinants.

Atlanta-based **Gozio Health** partnered with North Carolina's New Hanover Regional Medical Center to launch Gozio's mobile app for use in the regional center's six hospital facilities and 58 clinics[5]. This app was initially designed with the consumer in mind to navigate hospitals more easily. It was then expanded and integrated with Epic's MyChart to allow consumers to view patient records, physician directories and virtual maps, while providing real-time navigation between facilities. The objectives are to improve patient outcomes through better access to their records and fewer missed appointments. The company found that 85 percent of users who used the app for navigation returned to use other self-directed features such as scheduling, observing urgent care wait times and viewing hospital amenities[5]. Programs like these will help patients stay on top of their care and improve outcomes.

Digital Healthcare companies are also employing deep learning and propensity models to produce consumer/patient profiles complete with data sharing capabilities. **NRC** is a company, with an office in Atlanta, that studies market trend drivers and delivers segmented consumer engagement information to health systems. Through their focus on developing consumer profiles, they have found that most patients want a personalized experience, connected communication, and convenience of choice which are closely linked to their social determinants of health, mobility and compliance.

Patientco is utilizing patient engagement data in a non-clinical fashion in order to bridge the gap between patient and payor. They are leveraging user preference and behavioral data to communicate more effectively and have an improved payment experience building consumer loyalty, while expediting payments.

Conclusion

The current wave of emerging technologies offers great opportunities to transform healthcare to improve the delivery of care, while reducing rising healthcare costs. Healthcare systems are now compelled to adopt bold, new strategies and deploy innovative technologies to leverage new solutions to serve their organization and tomorrow's healthcare consumer. With 200 Digital Health companies in the state today, Georgia is making a major impact on delivering these technologies to the marketplace[1].

APPENDIX

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ABOUT US

About TAG Digital Health

TAG Digital Health focuses on Georgia's rapidly expanding healthcare field. Healthcare IT and management professionals, physicians, allied health professionals and hospital administrative personnel are all members of the Society.

We focus on the rapid advances in healthcare technology that are having an enormous impact on the field. Emerging biotech firms, new drugs and treatments, regulatory pressures, funding for promising start-ups and the management of a sea of healthcare information are all covered by the Society's programs.

TAG Digital Health's mission is to be a catalyst for furthering Georgia as a leader in healthcare technology, through opportunities in education, networking and collaboration by working with society members, community leaders and industry stakeholders to create an environment that will facilitate the realization of this mission.

Technology Association of Georgia

TAG is the leading technology industry association in the state, serving more than 30,000 members through regional chapters in Metro Atlanta, Athens, Augusta, Columbus, Macon/Middle Georgia, and Savannah. TAG's mission is to educate, promote, influence and unite Georgia's technology community to foster an innovative and connected marketplace to fuel the innovation economy.

The association provides networking and educational programs; celebrates Georgia's technology leaders and companies; and advocates for legislative action that enhances the state's economic climate for technology. TAG hosts over 200 events each year and serves as an umbrella organization for 26 professional societies. Additionally, the TAG Education Collaborative (TAG-Ed) focuses on helping science, technology, engineering and math (STEM) education initiatives thrive.

For more information visit the TAG website at www.tagonline.org or TAG's community website at www.hubga.com. To learn about the TAG-Ed Collaborative visit http://www.tagedonline.org/.

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METRO ATLANTA CHAMBER

MAC works to position metro Atlanta as a top-tier global region by focusing on key areas: economic development, public policy and promotion. MAC's efforts focus on recruiting new companies to the region and retaining businesses already in the area, reflect the organization's commitment to protect Georgia's status as the number one state to do business, and include robust marketing and communications.

SAGE

Sage Business Cloud is changing how businesses compete and grow, by delivering faster, simpler and flexible financial, supply chain and production management, at a fraction of the cost and complexity of typical enterprise ERP systems. The industries that are covered as of now are distribution, process and discrete manufacturing, food and beverage, chemicals, and services.