

2020
embedded
VISION
summit®

Vision Opportunities in Healthcare

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WOODSIDE
CAPITAL
PARTNERS



Introduction to WCP



Digital Health

M&A, strategic partnerships, and corporate finance advisory



Artificial Intelligence

Focused on emerging growth technology companies



AutoTech Report

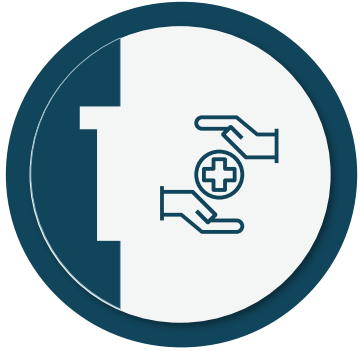
Offices in Silicon Valley, London, Shanghai



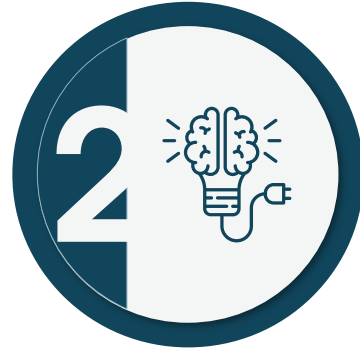
Collaborative Robots

Dedicated Digital Health and Computer Vision corporate finance practice

Key Thoughts



Healthcare Market Is
Massive And Growing



Digital Health Is Hot!
(Despite The
Pandemic)

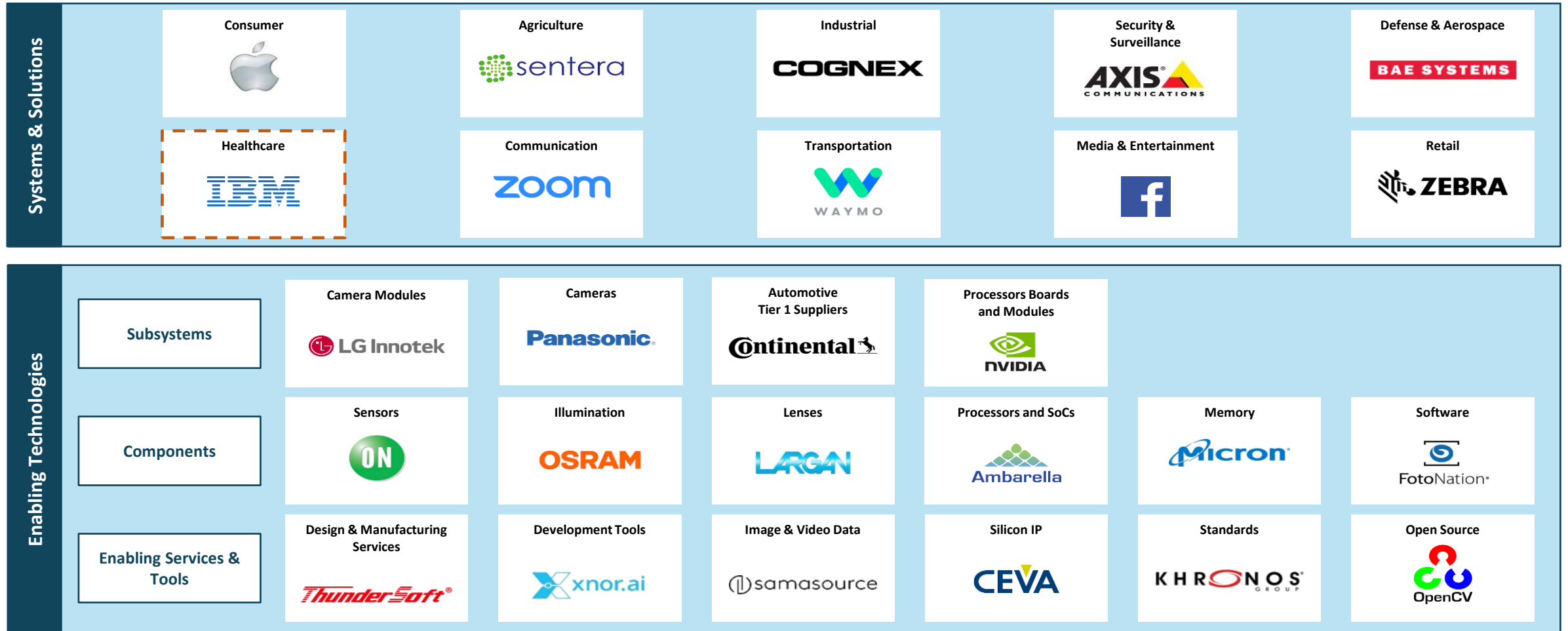


Computer Vision +
Healthcare =
A Natural Fit



CV Startup Ecosystem
Is Thriving
(Investments, Policy,
Strategics)

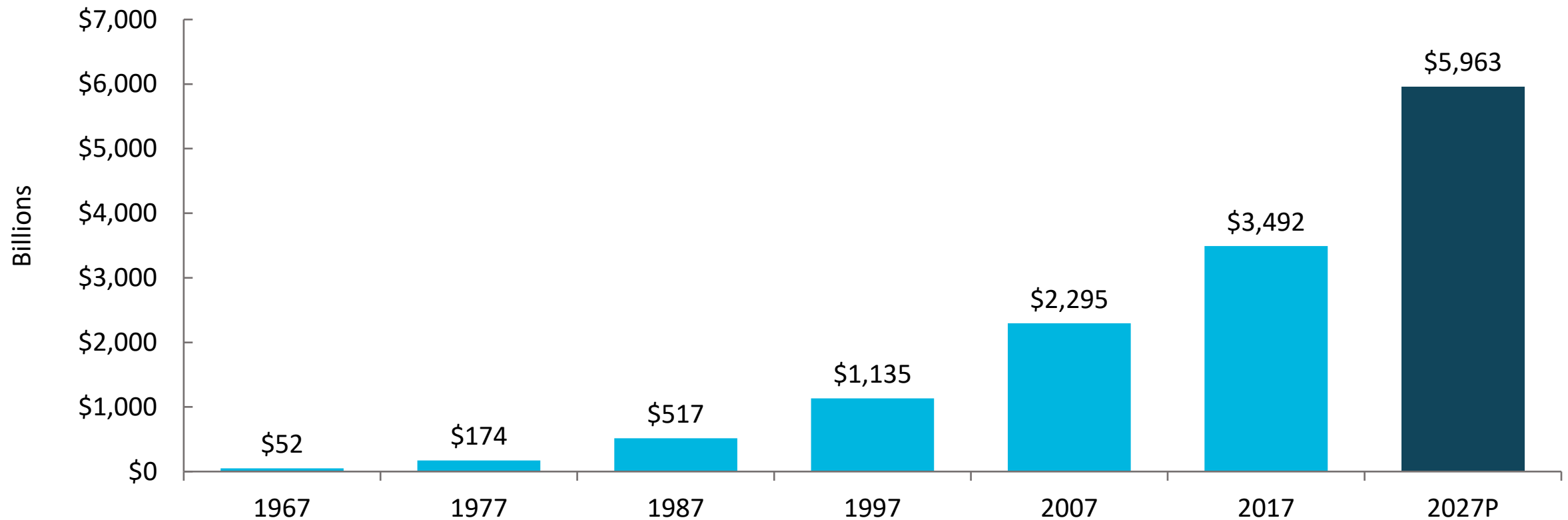
Embedded Vision / Visual AI Market Map



Market Size – US Health Spending

Healthcare spending is expected to increase significantly from \$3.5 tn in 2017 to \$5.9 tn in 2027

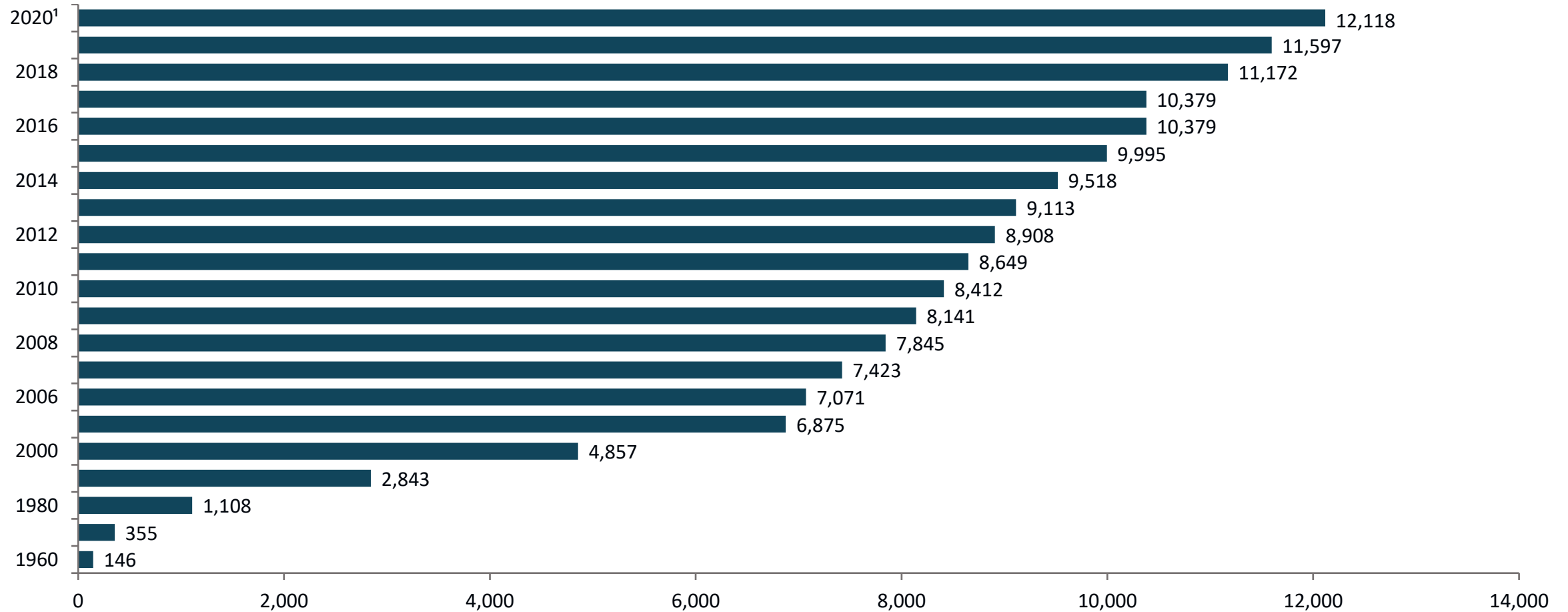
United States, 1967 to 2017, Selected Years, and 10-year Projection



Source: CMS.gov

US Healthcare Spending Per Capita (1960- 2020)

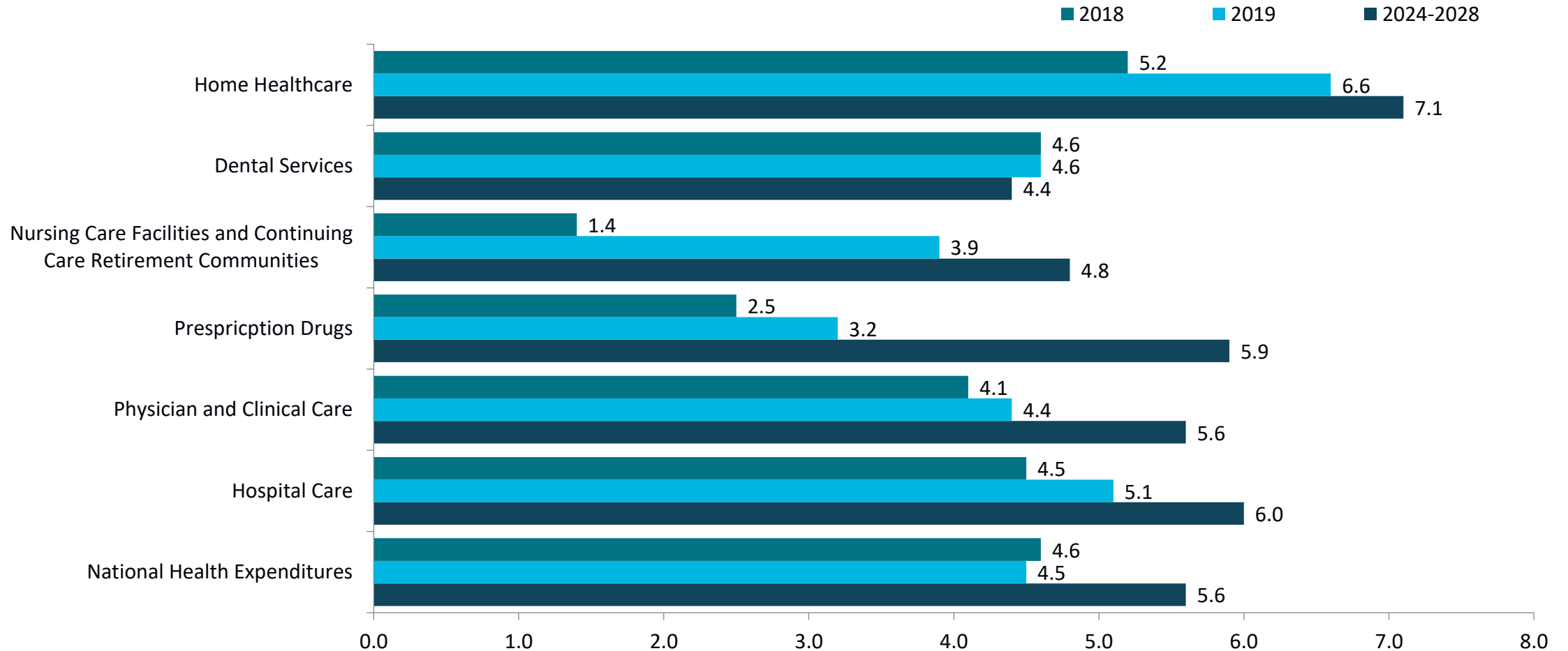
Per capita healthcare spending in the US is expected to grow from \$11,597 in 2018 to \$12,118 in 2020



1. Xxx
Source: Statista

US Healthcare Spending by Categories (%)

Nursing Care, Prescription Drugs, Physician/Clinical Care and Hospital Care are expected to show greatest % increase in healthcare spending in the US during 2024-2028



Source: S&P

US Healthcare Spending – Key Facts

US per capita healthcare spending has increased over 2018; however, the quality of healthcare is still not as expected

USD3.8 tn

Estimated total healthcare spending
in 2019

USD1.7 tn

Total US Federal State and Local
Govt. healthcare spending in 2019

4.8%

Growth in
spending over 2018

5.5%

Estimated growth in spending
during 2018 - 2027

59%

Spending goes to hospitals, doctors,
and clinical services

USD11,597

Estimated per capita healthcare
spending in 2019

17.7%

GDP share related to healthcare
spending

25%

Of all medical spending
goes to waste

40,000 – 80,000

Number of deaths
due to misdiagnosis

Source: CMS.gov, US Federal Government Spending, Fortune

Benefits of Computer Vision in Healthcare

CV is allowing medical practitioners to offer more **precise, on-time, and cost-effective diagnostic and monitoring services** that are enhancing the overall healthcare service delivery model



Precise Diagnoses

- Accurate diagnoses of image data
- Reduce redundant surgical procedures and expensive therapies



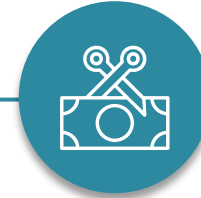
Timely Detection of Illness

- Early detection of symptoms
- Timely treatment
- Increased probability of survival



Health Monitoring

- Enables doctors to remotely monitor, analyze health metrics, and take faster and better medical decisions



Reduce Drug Development Costs

- Enables pharmaceutical companies to increase throughput



Improved Patient Care

- Saves time in analyzing reports and images
- Allows doctors to spend more time with patients and provide more personalized care

Source: Med City News, Logikk

Computer Vision in Healthcare Applications

The continuous involvement of CV in healthcare has created new areas of applications



Source: Health Tech Magazine

Healthcare Startups - Computer Vision Market Map

Imaging & Diagnostics



Genomics



Remote/Patient Monitoring



Source: CB Insights

Drug Discovery



Virtual Assistant



Clinical Trials



Nutrition



Fitness



Mental Health



Compliance

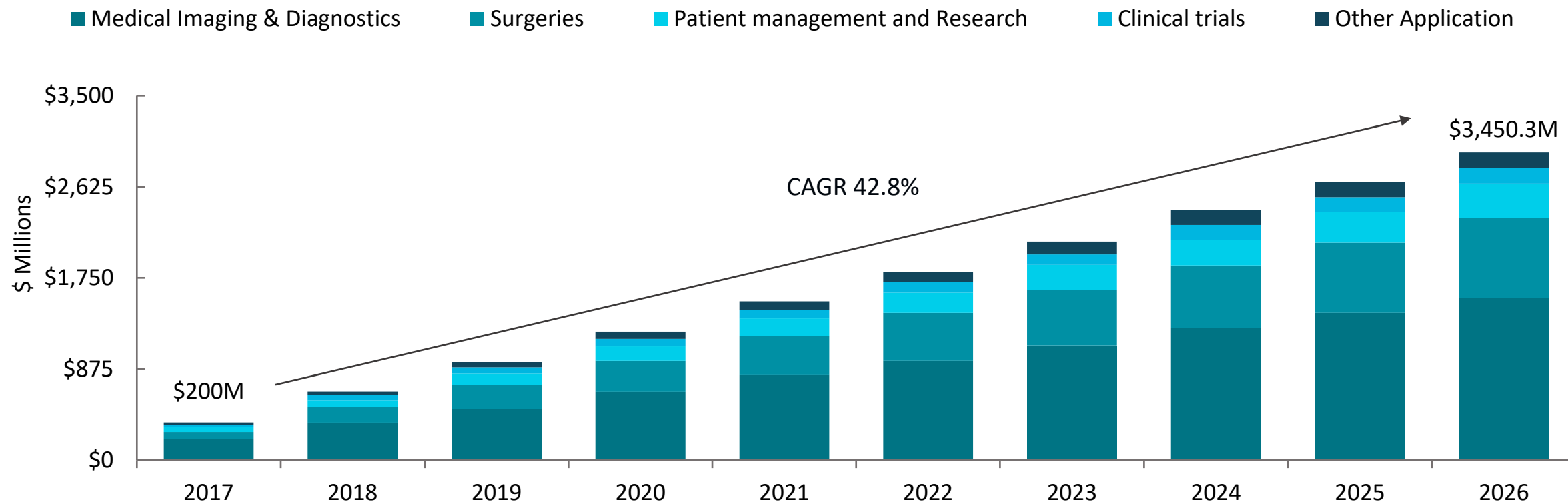


Wearables



Global Computer Vision in Healthcare Market by Application

CV in healthcare is expected to show continuous growth with medical imaging and diagnostics to contribute the most towards overall market growth

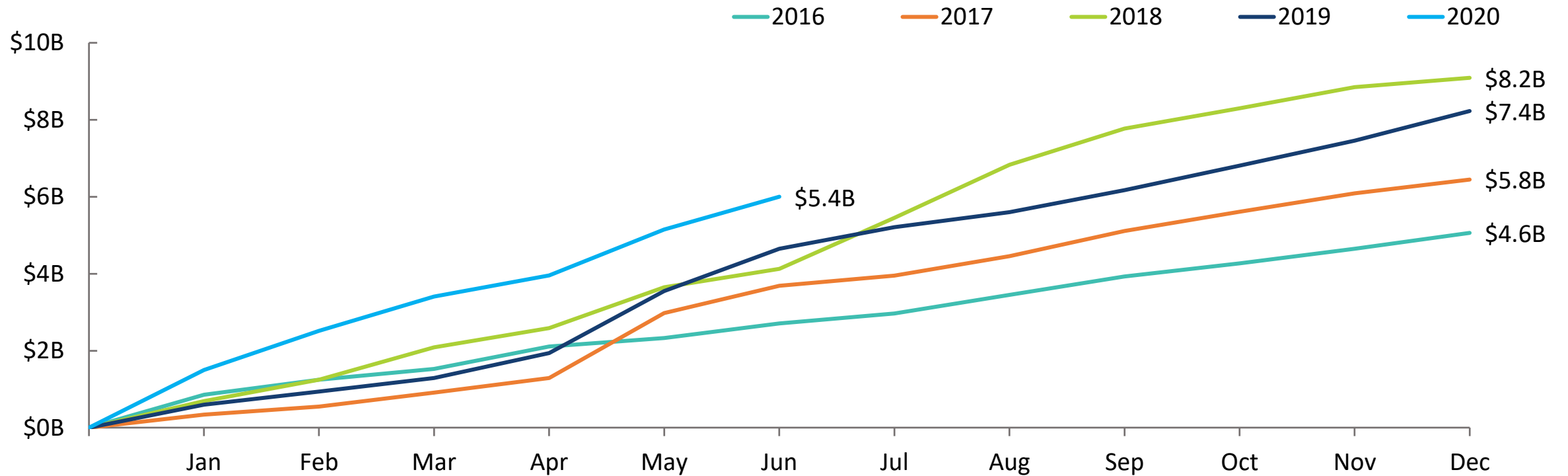


Source: Tractica, Maximize Market Research

U.S. Digital Healthcare Venture Funding

Despite the pandemic (or perhaps due to it), 2020 might see the highest venture capital infusion into Digital Health ever!

Digital health venture funding 2016-H1 2020

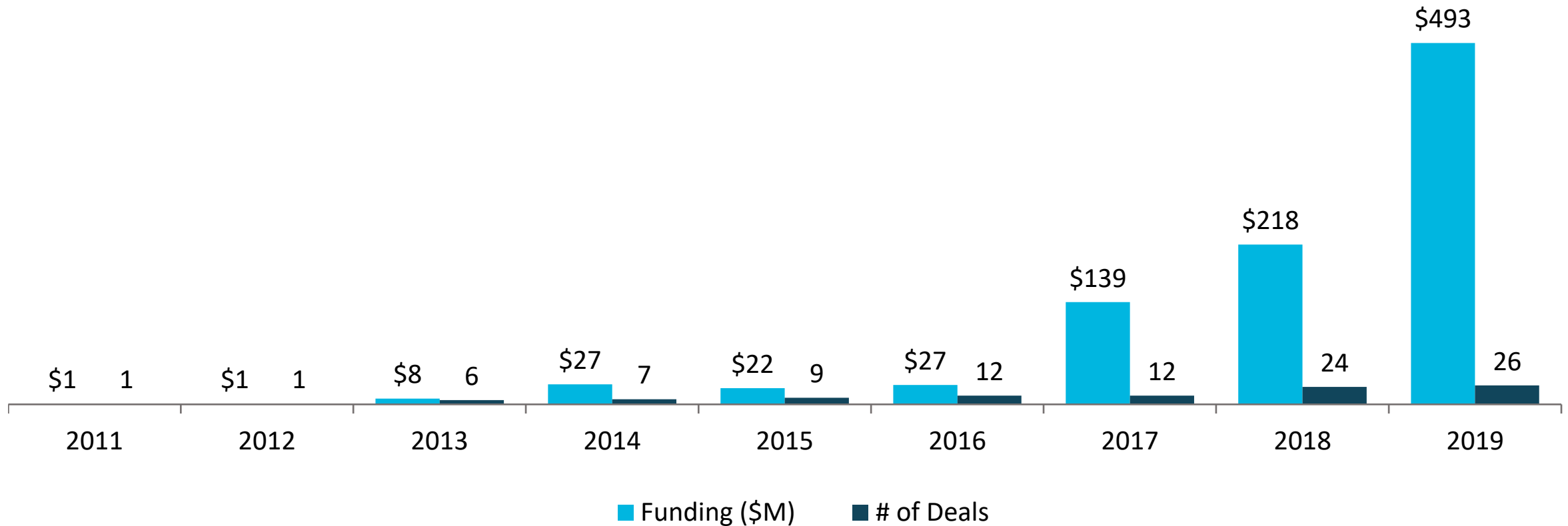


Source: Rock Health Funding Database

Note: Only includes U.S. deals >\$2M; data through June 30, 2020

Computer Vision in Healthcare Venture Funding

VC funding for CV in healthcare increased significantly from \$218 mn in 2018 to \$493 mn in 2019



Source: Pitchbook

Cutting Edge Computer Vision Healthcare Companies

Zebra Medical Vision, Caption Health and Sight are few of the trailblazing CV startups



Bringing AI and Deep Learning to pathology to deliver accurate diagnoses



AI for radiology (CT and X-ray) to detect abnormalities and speed time to diagnoses for everything from bone density to cranial bleeding



AI and Cloud Supercomputing for fast, accurate image analysis especially for cardiovascular and lung conditions



Brings affordable, scalable and accurate blood diagnostics to the point-of-care, thereby accelerating better patient outcomes and improving healthcare for all

Caption Health

AI-enabled acquisition and interpretation of ultrasounds



Securely stream patient photographs and wound analysis on the desktop



Designer of a medical imaging device that reduces the cost of real-time and 3D imaging and treatment



Non-invasive coronary artery disease detection using 3D image rendering



Machine vision based facial analysis to identify patient adherence















































Machine vision to analyze movement and falls for patients/seniors



Using contact free sensing technology for remote monitoring

Source: Crunchbase

Centralized vs. Remote Data Acquisition

Centralized Data Acquisition & Analytics					
Lab Diagnostic	Cardiology	Ultrasound	DNA Testing	MRI	CT Scan
					
					
					
					
Point of Care/Remote Data Acquisition & Analytics					
Ophthalmology	Crib Cam	Remote Monitoring	Lab Diagnostics	Dermatology	Bio-monitoring
					
					
					
					

Source: Company Websites, Secondary Research

Best Funded Companies in Computer Vision Healthcare (1/2)

Caption Health, Nanit, Healthy.io, AiCure are some of the major diagnostics solution providers that are more inclined towards CV-driven innovation

Company Name	Deal Date	Company Stage	Overview	Recent Funding (\$M)	Pre-money Valuation (\$M)
Caption Health	07/15/2020	Series B	AI and deep learning-based medical imaging software for intelligent video analysis to diagnose heart diseases	\$53.00	
Nanit	05/12/2020	Series B1	AI and computer vision-based monitoring devices designed to track baby sleep behavior and patterns	\$21.00	\$42.00
Arterys	05/06/2020	Series C	Medical imaging analytics platform with AI to visualize and quantify blood flow in the body using an MRI	\$28.00	\$16.00
Owkin	05/06/2020	Series A	ML tool to augment medical and biological research integrating biomedical images, genomics and clinical data	\$43.00	
Arterys	04/28/2020	Series C	SaaS-based analytics and medical imaging diagnostics used to visualize and quantify blood flow in the human body	\$28.00	

Source: CapitalIQ

Best Funded Companies in Computer Vision Healthcare (2/2)

Caption Health, Nanit, Healthy.io, AiCure are some of the major diagnostics solution providers that are more inclined towards CV-driven innovation

Company Name	Deal Date	Company Stage	Overview	Recent Funding (\$M)	Pre-money Valuation (\$M)
AiCure	11/07/2019	Series C	AI-based intelligent software to capture and understand video, audio, and behavioral data for disease treatment	\$24.50	
Healthy.io	09/11/2019	Series C	Computer vision and AI-based platform to capture test strip images using smartphone camera, analyze chemical color of urine test strips and give instant reports	\$60.00	\$192.42
Zebra Medical Vision	08/01/2019	Series C	ML-based medical imaging research and analytics platform to provide automated medical image diagnosis	\$39.26	\$94.31
Tempus	05/30/2019	Series F	Developer of a health care data analytics platform designed to improve patient outcomes	\$200.00	\$3,100.00
PathAI	04/17/2019	Series B	Developer of an AI-powered research platform for cancer diagnosis and treatment	\$60.00	

Source: CapitalIQ

Key Portfolio Companies of Major Investors (1/2)

General Atlantic, Bessemer Ventures, Khosla Ventures, and Google Ventures are some of the major investors in healthcare specific CV

Investors	Key Portfolio Companies
Khosla Ventures	HealthTap, Zebra Medical Vision, Curai, Arpeggio Bioscience, Olive (RPA)
DCVC	Zymergen, Culture Bioscience, CloudMedx, ProteinQure, HumanDx, Caption Health
Andreessen Horowitz	TwoAR, Freenome
Google Ventures	Flatiron, Insitro, Verana Health, Owkin, Fathom (Medical Coding Automation), DxOptics, ImagenTechnologies, Recursion Pharmaceuticals, Atomwise
General Catalyst	Mindstrong Health, OM 1, Curai, Imprivata, Color, Roman Health, Avant-Grade Health, Aidin, Humedica, Prematics
General Atlantic	Change Healthcare, EviCore Healthcare, Eclipsys, MultiPlan, Envoy, Amedes Group, CitrusTech, Change Healthcare, Alignment Healthcare, Capario, OneOncology, eRx Network, MedUnite, Healthcare Technology Management Services, MeDIStar Group
Polaris	OM 1, Gauss Surgical, Imprivata, Phytel, Phreesia, Free & Clear, Quartet Health, Partsource, Perpetual Motion, Prospex Medical, Sentillion, Strata Health Solutions, Wellsphare

Source: 3DS, Medical Device Network, Francisco Partners, WellSoft, Point Click Care, Secondary Research

Key Portfolio Companies of Major Investors (2/2)

General Atlantic, Bessemer Ventures, Khosla Ventures, and Google Ventures are some of the major investors in healthcare specific CV

Investors	Key Portfolio Companies
Digitix	Savonix, Tissue Analytics, Siris Medical, WellDoc
Canaan	Abyrx, Ambra, Anliva Biosciences, Arrakis Therapeutics, Arvinas, Corvium, Genome Medical, Glooko, Roman, Truveris, Vineti
Bessemer Ventures	AccuVein, Artemis Health, Bright Health, Collective Medical, Docent Health, Fractyl, Groups, Kymera Therapeutics, Nym, Qventus, Subtle Medical, TScan Therapeutics

Source: 3DS, Medical Device Network, Francisco Partners, WellSoft, Point Click Care, Secondary Research

Big Tech Transforming Healthcare (1/2)

Large data companies like Google, Amazon and Apple are making huge strides into healthcare as technological advancements have enabled digital healthcare to advance rapidly



- **Most active** big tech firm in healthcare AI initiatives
- Founded **Verily** in 2015
- Project Medical Digital Assist focused on **AI usage in physician assistance**
- Developed algorithm to **diagnose diabetic retinopathy** in images
- Acquired fitness activity tracker **Fitbit** for \$2.1 billion
- **Partnered with biotech firms** C4 Therapeutics and AbbVie pharmaceuticals via Calico



- **Corporate healthcare system** – Amazon Care
- Purchased online **pharmacy startup PillPack**
- Plans to sell **medical records reading software**
- Working on **cancer research and other healthcare related ventures** such as last-mile delivery



- Focus on **patient facing products** as well as streamlining **medical payments**
- Received **FDA clearance** for new heart monitoring Apple Watch feature (**EKG**)
- Implementing **Apple Health Records** system through **hospital partnerships**
- Acquired sleep monitor company **Beddit** (May 2017) and personal health data platform **Gliimpse** (2016)

Source: Google, Healthcare Weekly, CNBC, TheVerge

Big Tech Transforming Healthcare (2/2)

The healthcare industry presents tremendous business opportunity, encouraging other top tech companies to adopt healthcare innovation



- Launched **health care division** in 2017 that focuses on **AI for patient care improvement**
- Alliance with Walgreens to develop **new health care innovations**
- Offering **healthcare focused solutions** through Azure suite



- Collaborative research on applying **AI to MRI scans**
- Acquires **neural interface startup** CTRL-Labs for its mind-reading wristband
- Plans to launch **“Preventive Health” tool** to prompt users to get regular checkups



- Acquired **predictive healthcare** technology business of BioSensics
- Bought **seniors-focused health services** company Critical Signal Technologies and GreatCall, emergency concierge & monitoring services provider



- Acquired Auris Health's **robotic platform technology** used in diagnostic and lung therapeutic procedures
- Partnered with accelerator Founders Factory with focus on startups in the **consumer healthcare space**



- Intel Capital invested in Lumiata, which improves quality of hospital care through **data and predictive analytics**
- Invested in EchoPixel, which is developing tools to enable **non-invasive colon cancer screening**



- Launched Uber Health: **non-medical-emergency transportation service**

Source: Microsoft, Becker Shopital Review, The Verge, Telegraph, Company Websites

FDA Gears for Innovation in Medical Technology

As shift towards new technologies gains momentum, **the FDA has worked to modernize their regulatory approach** to facilitate innovation to improve the healthcare system

Proposed regulatory framework for **dynamic AI systems** to ensure realization of the full potential of the technology

Approval of 106 novel devices in 2018, including **artificial intelligence** based technologies for diabetic retinopathy diagnosis

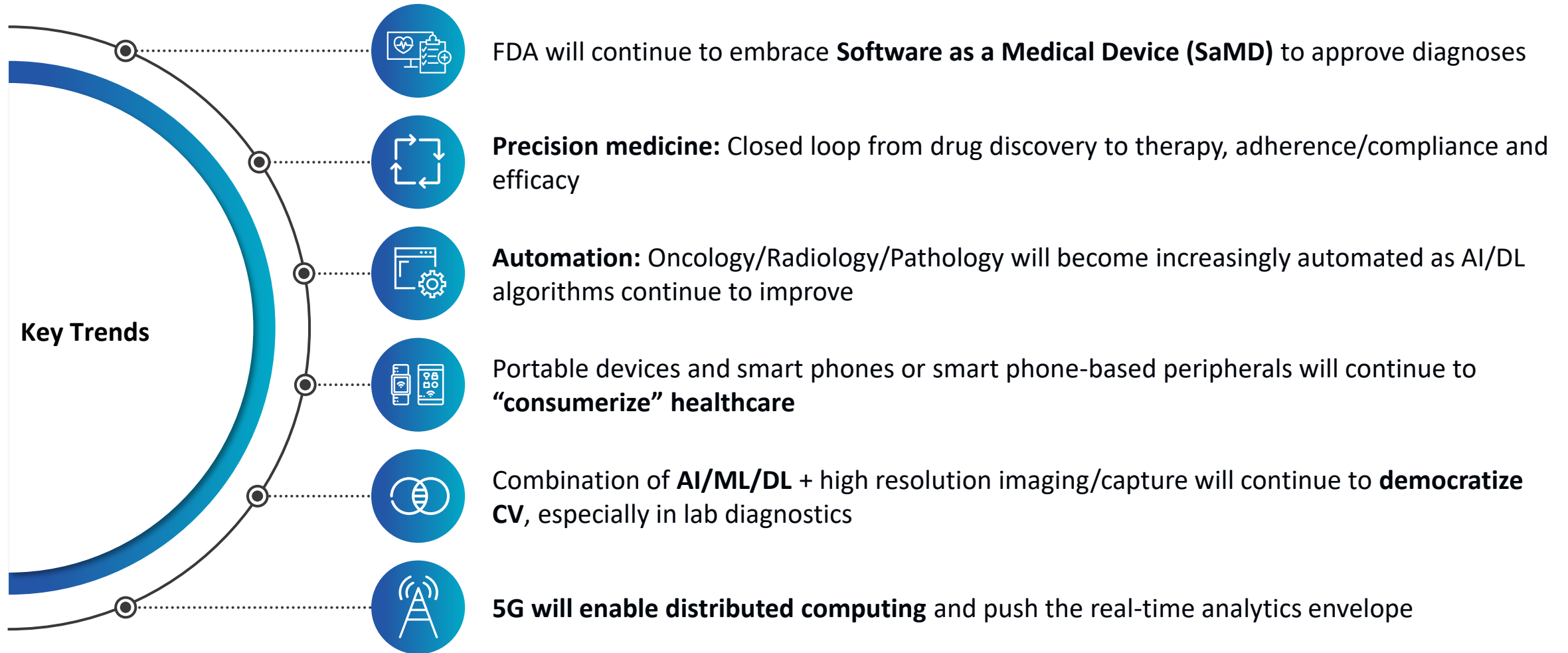
Creation of a **Center for Excellence for Digital Health** to complement the advances in software-based devices

Digital Health Innovation Action Plan 2017

- Regulatory **exclusion of certain medical software** and lifestyle mobile apps under the **revised 21st Century Cures Act**
- Development of a **precertification program** for faster launches for certain products (including AI based products)
- Growing FDA's **medical software technology expertise** through talent hiring

Source: Technology Review, MedTech Boston, FDA, Healthcare IT News

Future Trends



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