

Artificial Intelligence Applied to Healthcare

Moderator

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Announcements

- ▶ The archived recording will be available shortly after the webinar on the BMES website.
- ▶ You may submit questions throughout the webinar by using the online chat function. Your questions will be addressed after the featured speaker presentations.
- ▶ Please take a few minutes to complete the brief survey following the webinar to provide us with your feedback.

Speakers

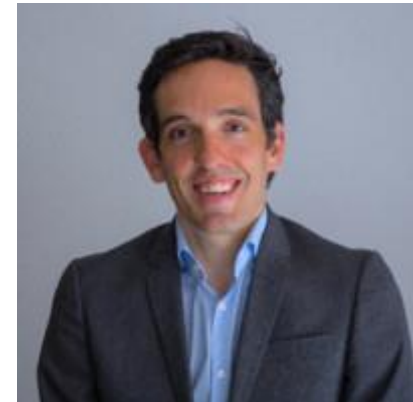
- ▶ **John Showalter, MD**

Chief Product Officer
Jvion



- ▶ **John Axerio-Cilies**

COO and Co-Founder
Arterys





Making AI Work for Healthcare

Presentation to the
Biomedical Engineering Society (BMES)

The Value of the Jvion Cognitive Machine



The goal of Jvion's enterprise cognitive machine is to **help providers take action that matters**

The machine's ability to identify patients on a risk trajectory, determine if that trajectory can be changed, and—if so—provide the specific interventions that will improve outcomes has delivered tremendous value across vectors:

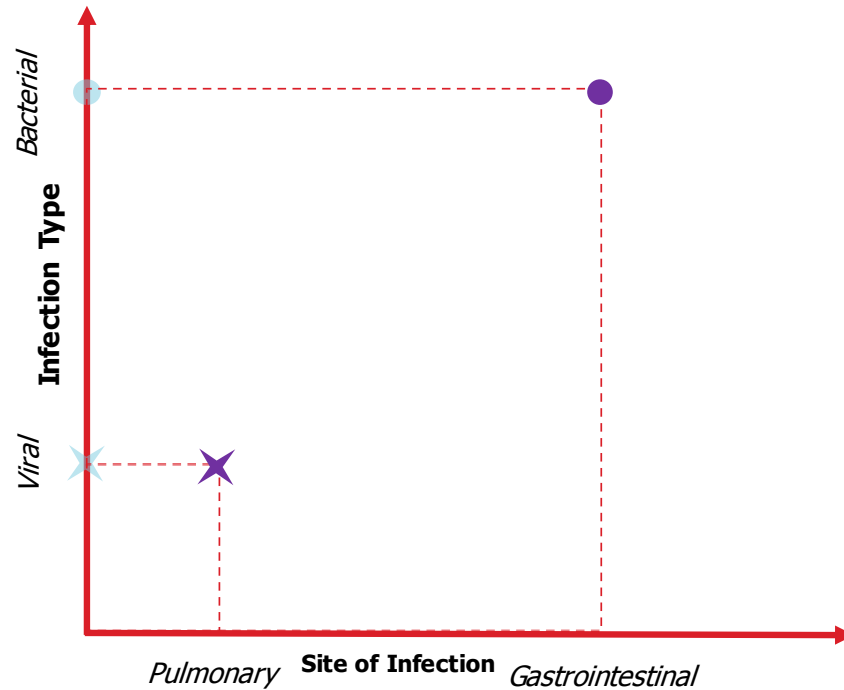
Average return delivered by the machine:

- ▶ Average ROI on live accounts = **\$6.3 mil**
- ▶ Median ROI on live accounts = **\$3.6 mil**

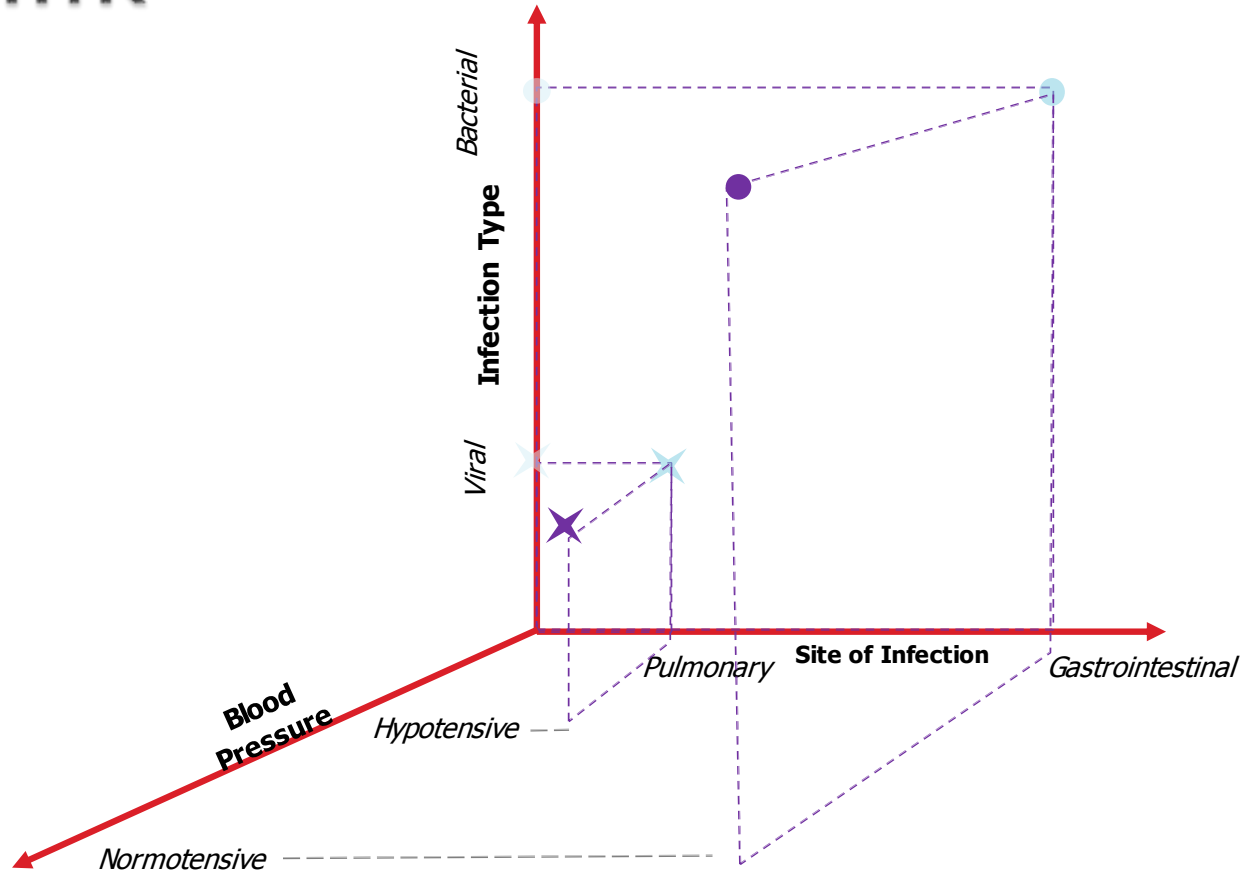
Overall reductions and efficiencies enabled by the machine:

- Reduction in incident range = **10-50%** (median/average = 30%)
- Reduction in resources range = **27-75%** (median = 50%, average = 49%)

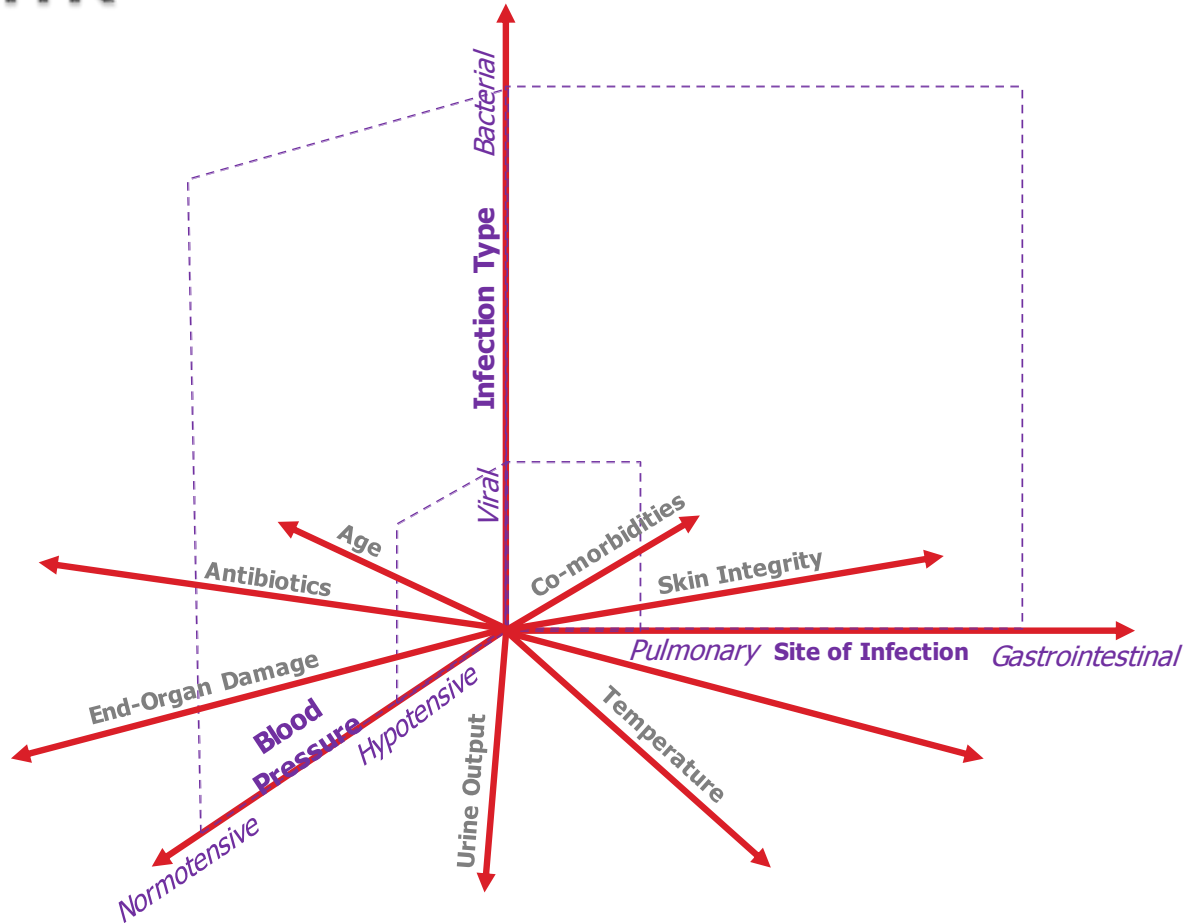
Teaching a Machine to Think



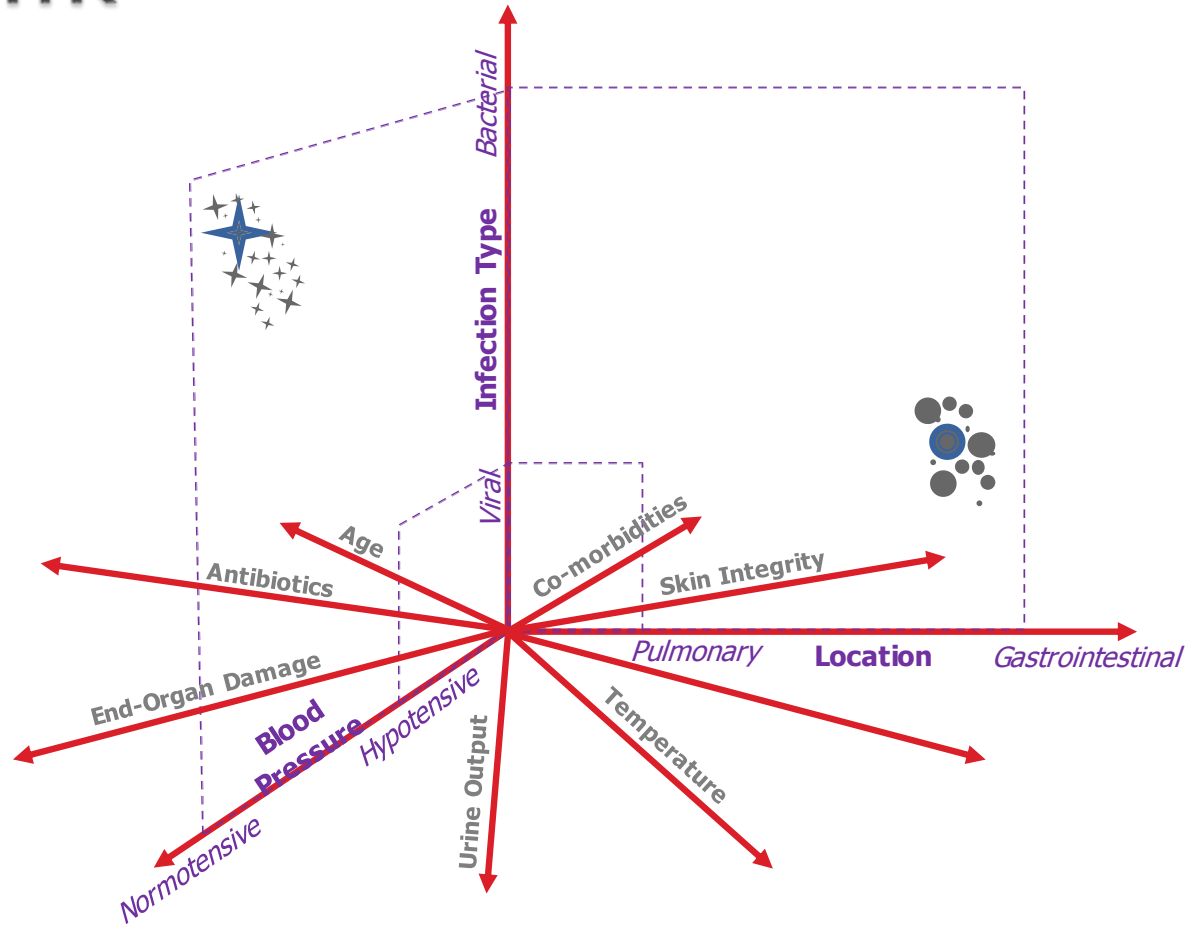
Teaching a Machine to Think



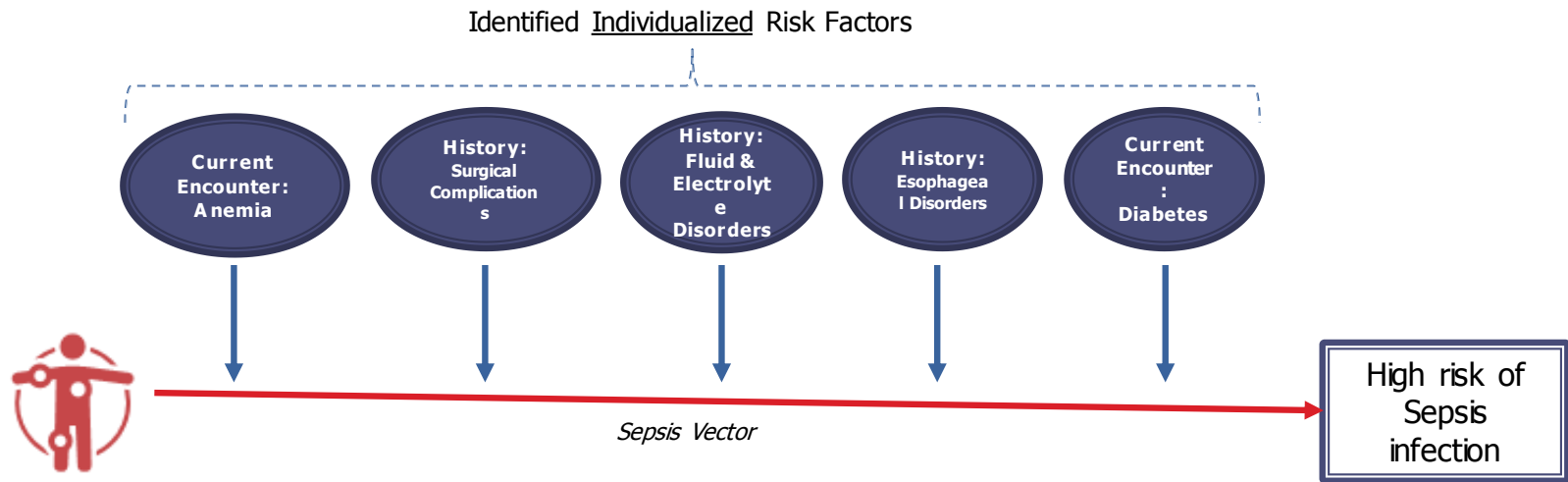
Teaching a Machine to Think



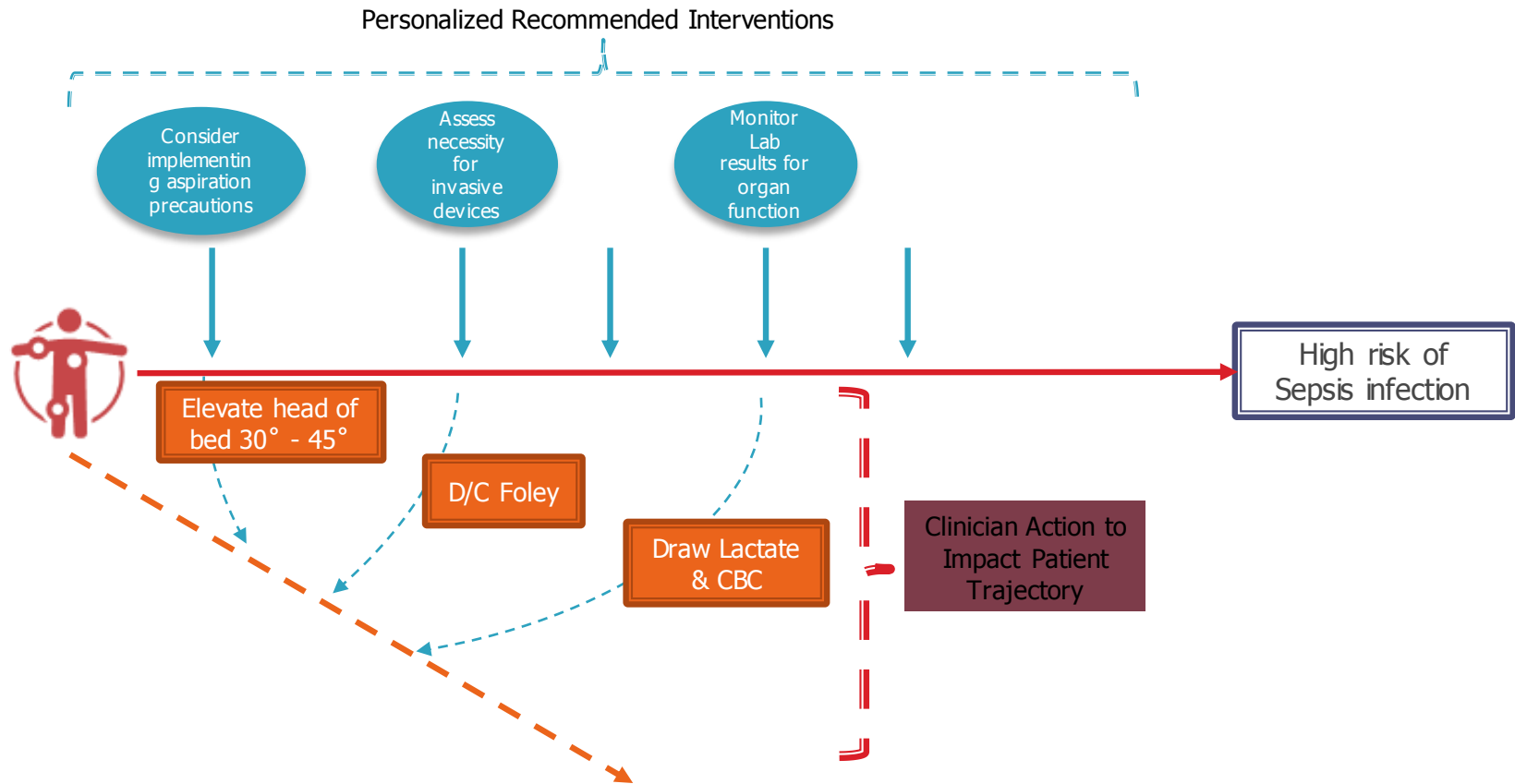
Teaching a Machine to Think



The Eigen Based Technology: Inpatient Patient Sepsis Vector Example



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UnityPoint: All-Cause Readmissions and Avoidable Admissions



UnityPoint Central Iowa is a three hospital region within the UnityPoint Health system

All-cause Readmission (ACR)

- Organizational strategic priorities target the top performance decile by 2020
- Historical readmissions performance resulted in CMS penalties and high levels of variation across facilities
- Internal review demonstrated a significant decrease in readmissions and in variability for the facility that implemented Jvion's Cognitive Machine and actioned the recommended interventions

Avoidable Admission

- Based on success with ACR, UnityPoint Health expanded their vector footprint to include avoidable admissions implemented across 20 family practices following an initial pilot

Key Performance Indicators

- Within ten months, UnityPoint Health avoided **\$2.9 million** in associated
- Greater than **50% reduction** in variation of care/outcomes
- Average **18% improvement** in chronic condition readmissions (CHF decreased by 11%; COPD decreased by 34%; Bact PN decreased by 10%)

Key Performance Indicators

- Pilot practices demonstrated a **30%** reduction in avoidable admissions
- Reductions in the pilot clinic were enough to generate an overall **5.6%** reduction across all ambulatory settings; COPD admissions were reduced by **52%** alone

Baptist Health: Health Regression



Baptist Health is a three hospital Integrated Delivery Network in central Alabama

Health Regression

- Organizational objective to reduce cost per beneficiary for the employee health and self-insured populations
- Focus was to drive members to community resources to improve health and avoid costly admissions
- Through the use of the Jvion Cognitive Machine, Baptist Health was able to more effectively engage members with resources and delivered critical communications to at-risk populations
- With the increased visibility into population level risks, Baptist Health has been able to expand programs and drive additional resources to areas of critical need

Key Performance Indicators

- **50%** reduction in employee population costs indicated
- **\$4.8M** reduction (from \$9.4M in 2016 to \$4.7M in 2017) of paid claims across ~2,500 employees
- Cost of top 100 costliest patients reduced by **~\$3.2M** from 2016 to 2017
- **245** fewer ER Visits in 2017
- **377** fewer inpatient Visits in 2017

SAMC: Pressure Injuries and Sepsis



SAMC is a not-for-profit community health system serving southern Alabama

Pressure Injuries

- Based on an opportunity analysis provided by Jvion, SAMC chose to focus the Cognitive Machine on pressure injuries to reduce cost, improve quality, and reduce mortality
- Nurses action the Jvion Cognitive Machine outputs to identify and intervene on patients that they would have otherwise missed
- Nurses report improved satisfaction and empowerment because of the Jvion Cognitive Machine

Inpatient Sepsis

- The Cognitive Machine helps facilitate the partnership between physicians and nurses to lower rates of sepsis
- The machine has helped shift treatment of sepsis from early identification to primary prevention

Key Performance Indicators

- **16.75%** average reduction in number of pressure injuries per month
- Cost avoidance per month **\$81,320 - 326,800***
- Cost avoidance per year **\$975,840 - \$3,921,600**

*Cost per PI range - \$10,700 to \$43,000

Key Performance Indicators

- **25.5%** average monthly reduction in sepsis
- **\$442,000 - \$741,000** cost avoidance per month
- **455** average monthly total avoided patient days

QUESTIONS?

BMES Activities and Events

- ▶ **BMES Professional Development Webinars**
<https://www.bmes.org/elearning>
- ▶ **2018 BMES Annual Meeting – 50th Anniversary**
<https://www.bmes.org/annualmeeting>
 - **October 17–20, 2018** – Atlanta, GA
- ▶ **2019 BMES/FDA Frontiers in Medical Devices Conference**
<https://www.bmes.org/annualmeeting>
 - **March 19–21, 2019** – Greater Washington DC Area