ACEP PARTNER COLLABORATIVE

Unlocking the Power of Healthcare (EM) Data

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

Healthcare (EM) Data

- Future of Healthcare Data
- Registry Data Solutions
- Partnership Data Solutions
- Quality & Research Solutions
- Engaging with ACEP
- Q&A

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

Presenters

Todd B. Taylor, MD, FACEP (ttaylor@acep.org)

Chief Vision Officer, ACEP Emergency Medicine Data Institute (EMDI)
Vice-Chair, ACEP Health Innovation & Technology Committee

Dhruv Sharma, MS (dsharma@acep.org)

ACEP EMDI Data Scientist/Architect

Chris Plance (chris.plance@paconsulting.com)

Managing Consultant, PA Consulting

Rami R. Khoury, MD, FACEP (rkhoury@acep.org)

Member, ACEP Board of Directors
VP of Operations (West), Independent Emergency Physicians, PC
Emergency Physician, Ascension Providence Southfield/Novi

Future of Healthcare Data

Todd B. Taylor, MD, FACEP

Rapid: Impact of New Documentation Guidelines on E&M Codes

Utility: Limited only by our imaginations

Automated: AI & Large Language Models (LLMs)

Scary: Use of AI & LLMs : Ahead of the learning curve

Regulated: Cat in the Hat or Out of the Bag?

Are you in?

Future of Healthcare Data

Utility: Limited only by our imaginations

HEALTHLEADERS

AI Beats Gold Standard for Diagnosing Heart Attacks

Researchers found that an AI tool outperformed the three most common practices for analyzing ECGs of patients treated for chest pain.

Read More

Invited Commentary

How Chatbots and Large Language Model Artificial Intelligence Systems Will Reshape Modern Medicine

Fountain of Creativity or Pandora's Box?

Ron Li, MD; Andre Kumar, MD, MEd; Jonathan H. Chen, MD, PhD

Future of Healthcare Data

Automated: AI & Large Language Models (LLMs)

AI-Generated Medical Advice—GPT and Beyond

For years, experts have speculated about the future role of artificial intelligence (AI) in health care. Some AI tools can outperform physicians on specific tasks in radiology, dermatology, and other fields, which raised concerns that AI might render certain specialists obsolete. Some feared AI might expose patients and clinicians to novel risks.[1] Others wondered whether physicians could use AI in good conscience if they do not understand how it works, or whether clinicians who fail to adopt it might be accused of providing substandard care.[2]

These concerns have faded somewhat as high-

However, in its current form, GPT is prone to errors and omissions. It can fail at simple tasks, such as basic arithmetic, or insidiously commit errors that go unnoticed without scrutiny by subject matter experts. Some users observe that when asked to provide references for its claims, GPT often makes them up. Educators fear students might be misinformed when relying on the software. Due to the risk of fabrication, academic publishers are requiring authors to disclose their use of the technology. Finally, algorithms generally are known to reproduce biases of their training data, creating the potential for harmful discrimination.[5]

ACEP Now
The Official Voice of Emergency Medicine

Dr. Chatbot Will See You Now

By Ryan Patrick Radecki, MD, MS

June 7, 2023

Future of Healthcare Data

Scary: Use of AI & LLMs : Ahead of the Learning Curve

AI IN MEDICINE

Generative AI in Health Care and Liability Risks for Physicians and Safety Concerns for Patients

Generative artificial intelligence (AI) is a quickly emerging subfield of AI that can be trained with large data sets to create realistic images, videos, text, sound, 3-dimensional models, virtual environments, and even drug compounds. It has gained more attention recently as chatbots such as OpenAI's ChatGPT or Google's Bard display impressive performance in understanding and generating natural language text. Generative AI is being

The ability of black-box generative AI systems to provide users with quick health-related information raises the question of whether, and if so how, health care professionals, such as physicians, and patients should use this technology. To answer this question, it is important to understand the potential liability risks for physicians using generative AI in health care and the risks for patients seeking medical advice from such tools.

Future of Healthcare Data

Regulated: Cat in the Hat or Out of the Bag?

JAMA Network | Open

Original Investigation | Ethics

Marketing and US Food and Drug Administration Clearance of Artificial Intelligence and Machine Learning Enabled Software in and as Medical Devices
A Systematic Review

Phoebe Clark, MS; Jayne Kim, PhD; Yindalon Aphinyanaphongs, MD, PhD

Harnessing the Promise of Artificial Intelligence Responsibly

We are now in an exceptional time: algorithms driven by artificial intelligence (AI) and related approaches are seemingly ubiquitous, are heavily promoted, and hold great potential, but early implementations have demonstrated the potential for harm, failure to perform, and furtherance of inequity.[1] The promise of AI is clear: algorithms can provide new insights that support better decisions based on what they believe are appropriate tion of our own data, usually generated in the past. Advanced algorithms detect incredibly complex patterns on massive data supporting the association of exposures and outcomes but do not "think" on their own. Health care professionals and the health systems in which they operate are still responsible for making

Future of Healthcare Data

Are you in?

Registry Data Solutions

Todd B. Taylor, MD, FACEP

American College of Emergency Physicians (ACEP)

Clinical Emergency Data Registry (CEDR)

has expanded to the

Emergency Medicine Data Institute (EMDI)a

Emergency Medicine Data Institute

Data Registry

- MIPS
- Advanced Payment Models
- Future Regulations
- Patterns & Trends
- Much more

Quality Improvement

- E-QUAL
- Real Time Benchmarking
- Improvement Activities

Research & Analytics

- Grants
- Information Analysis
- Healthcare Surveillance
- Biopharma

Quality Measures

- Measure Lifecycle
- Accreditation & Policies
- Quality Improvement
- CMS Regulations

American College of Emergency Physicians®

ADVANCING EMERGENCY CARE

Benefits of EMDI to Emergency Medicine

Identify Public Health Problems

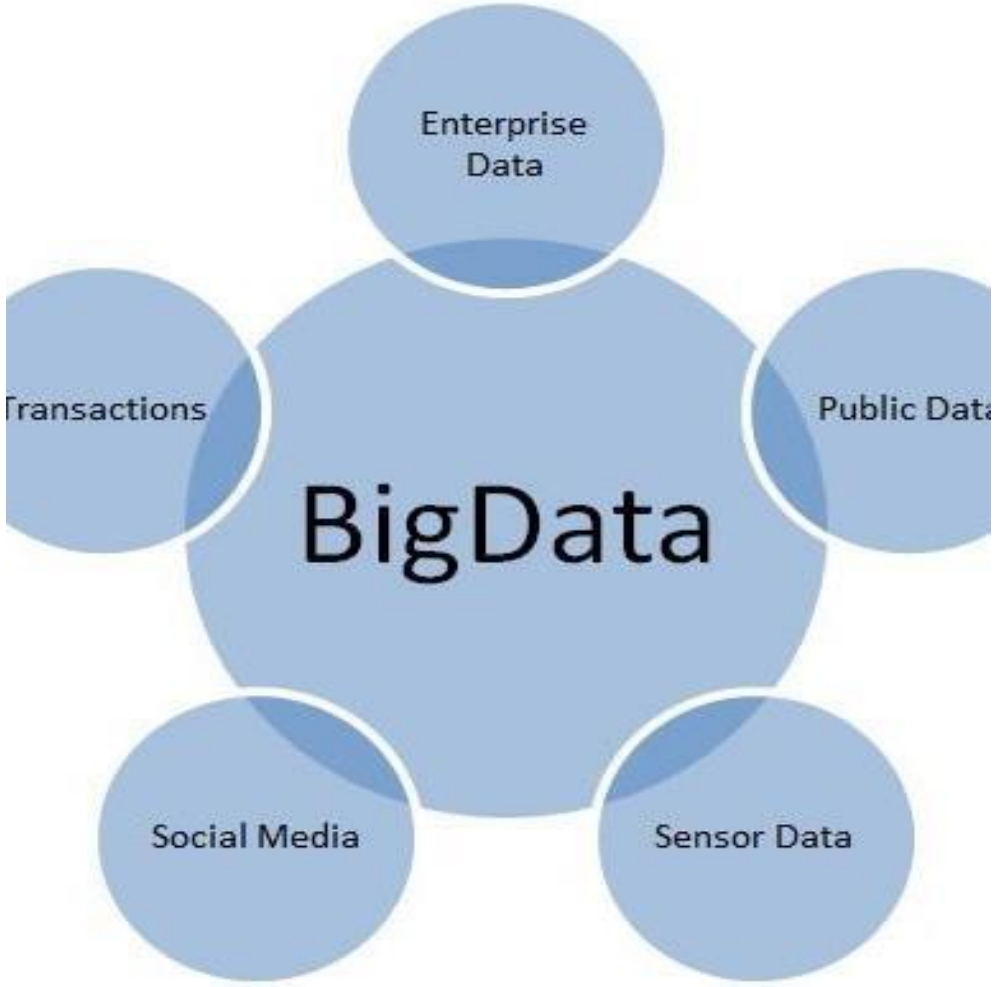
Understand Practice Ownership Trends

Reveal Insights for Emergent Threats

Track Healthcare Resource Utilization

Benefits of EMDI to Healthcare

- Integrate across healthcare spectrum by combining EM data with other sources
- Use weather, geopolitical, socioeconomic & other info to manage healthcare
- Drive critical care services & outcomes via data analytics, AI & surveillance

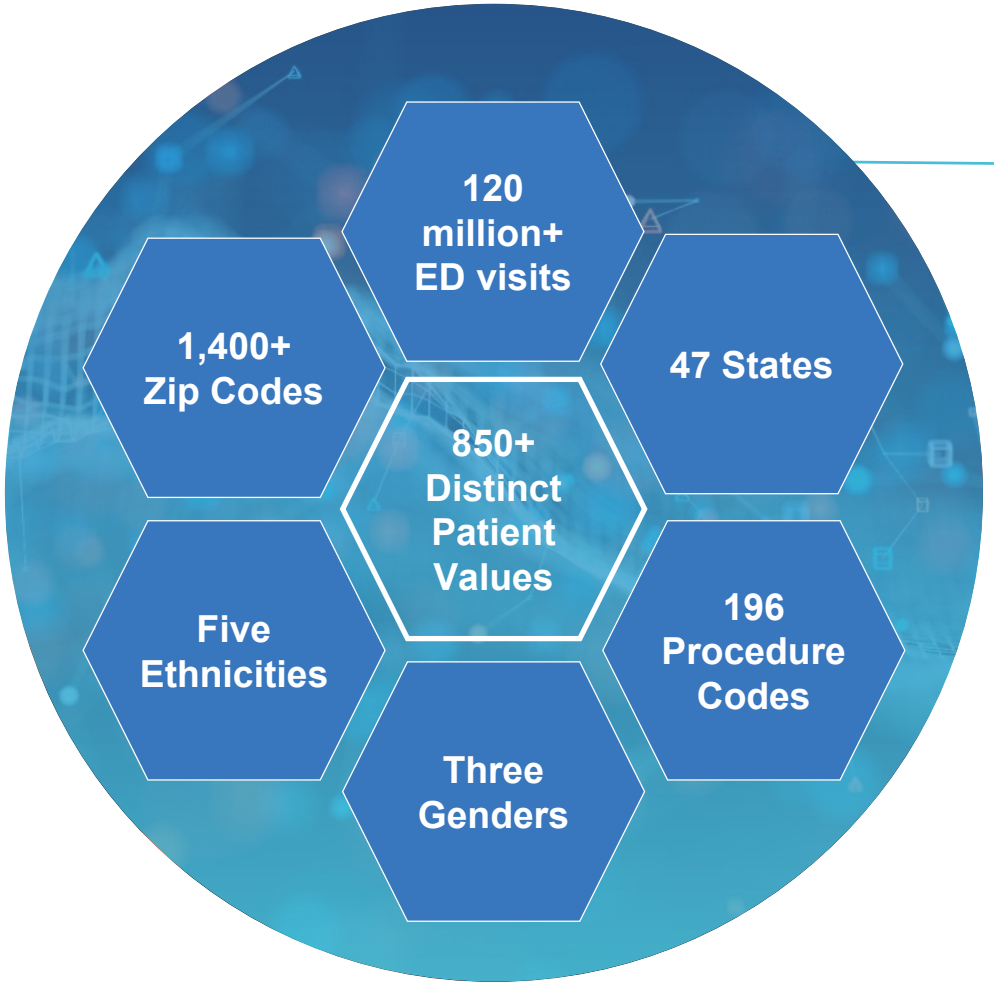


EMDI: The Future of Emergency Medicine

- Government Program Compliance (QPP\MIPS)
- “True” Quality Management & Research
- Biosurveliance & Population Health
- Advocacy & Public Affairs
- RCM Support & Analysis
- Utility Apps
- Economies of Scale
- Many Others

EMDI: Diverse Patient Population

EMDI currently captures about 1 in every 7 US ED visits



1000+
Emergency Departments

250+
Physician Groups

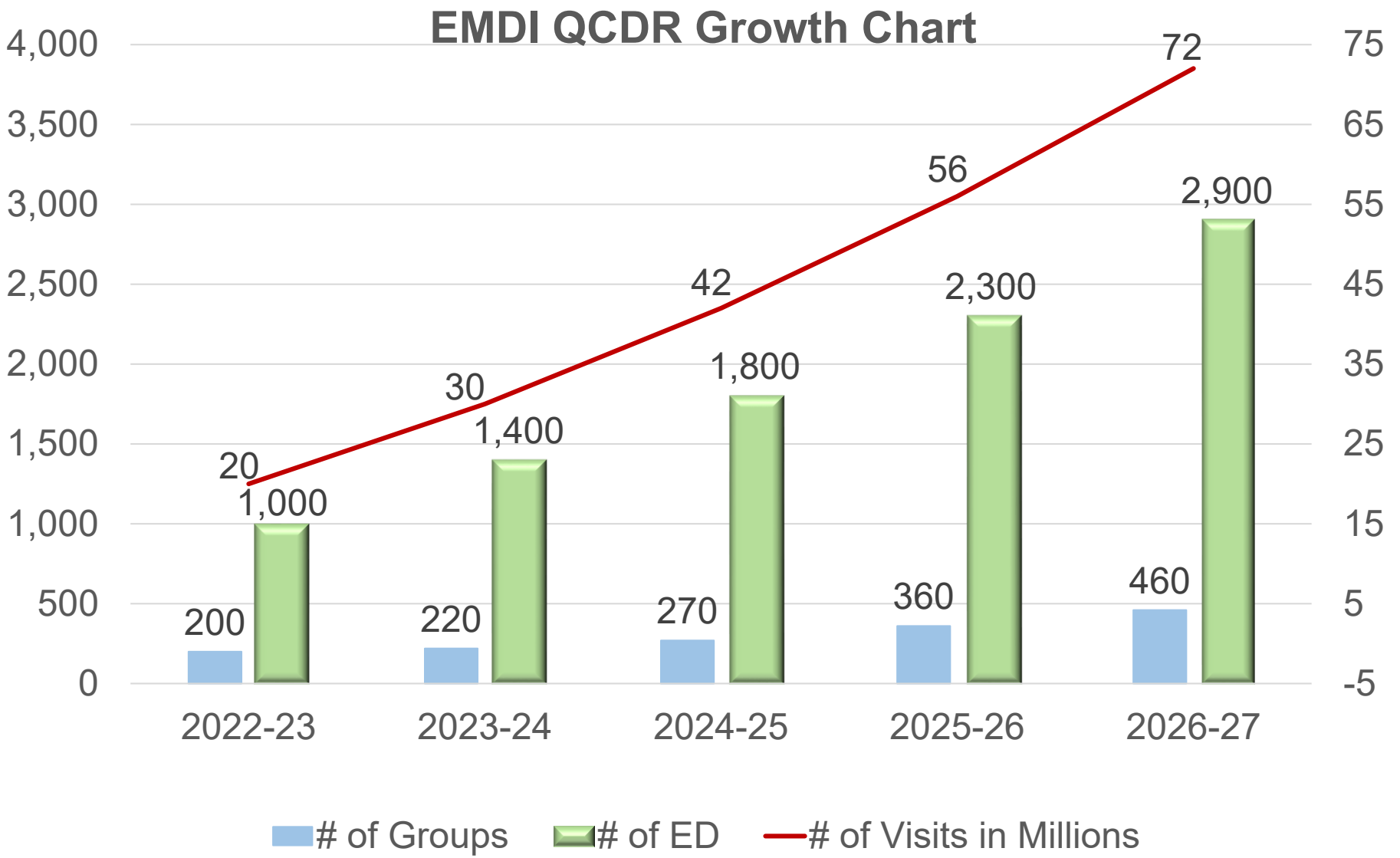
20,000+
Service Providers

850+
Data Elements

48
States

120M+
Total ED Visits

EMDI: Customer & Data Growth Projections



EMDI contains a robust dataset of real-world data to support a variety of use cases

Demographics

- Age
- Gender
- Race
- Geographic location
- Marital status
- Insurance plan

Medical History

- Allergies
- Family history
- Lab orders & results
- Medical procedures
- Prescription med history
- Medication, strength, quantity, & frequency
- Substance use/abuse history

Visit Summary

- Vital signs
- Symptoms
- Visit diagnosis
- Discharge details
- Plan of care / treatment
- Service provider
- Service location

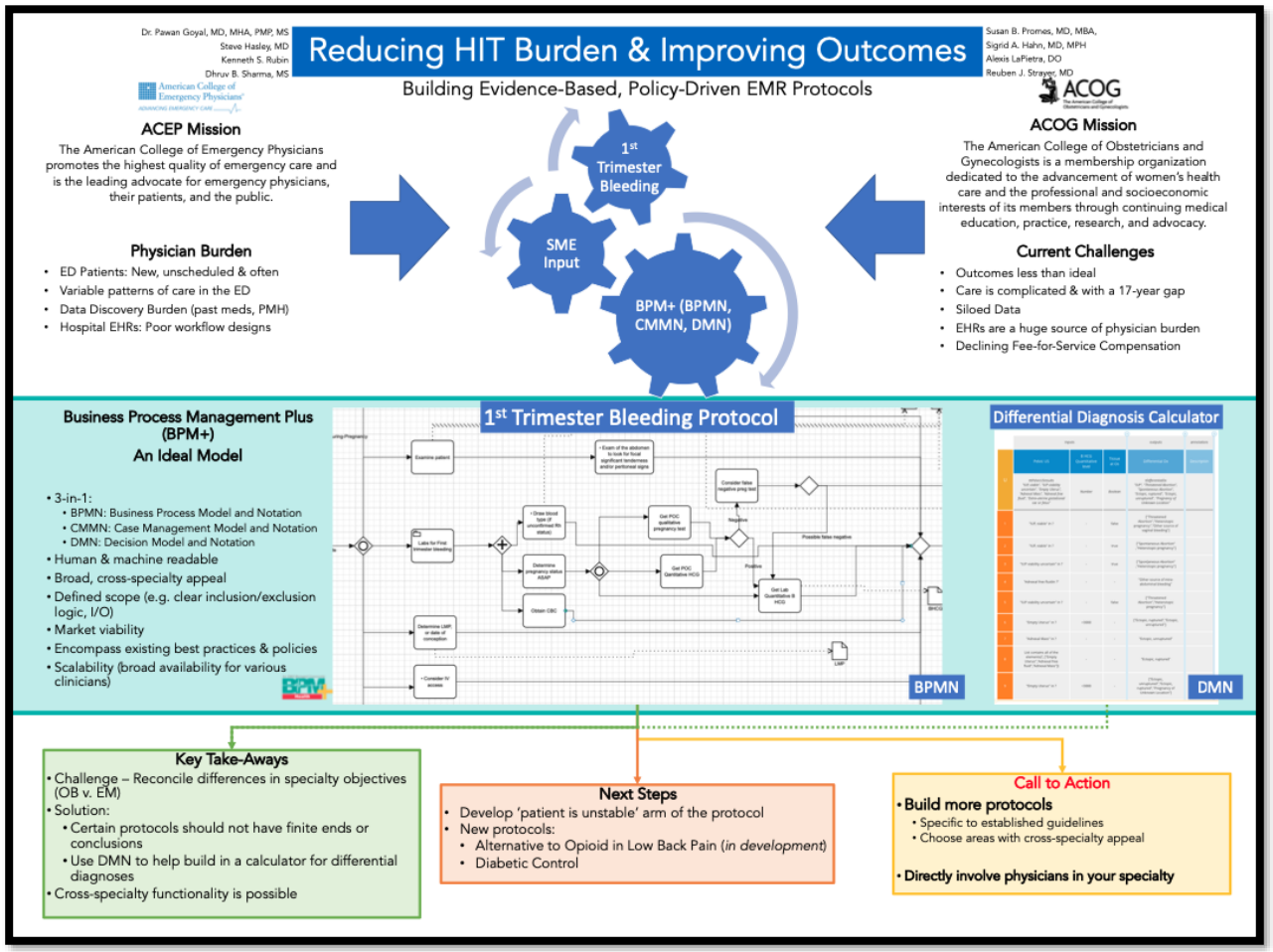
Data Structure & content support a variety of use case

Industry Collaboration

BPM+ Health: Digitalizing clinical policies

Interoperability Institute: Creating a synthetic research platform

MCBK: Building data-driven knowledge libraries



Partnership Data Solutions

Chris Plance

- Hospitals
- Industry
  - Pharma
  - Device Manufacturers
  - Business Services
  - Software

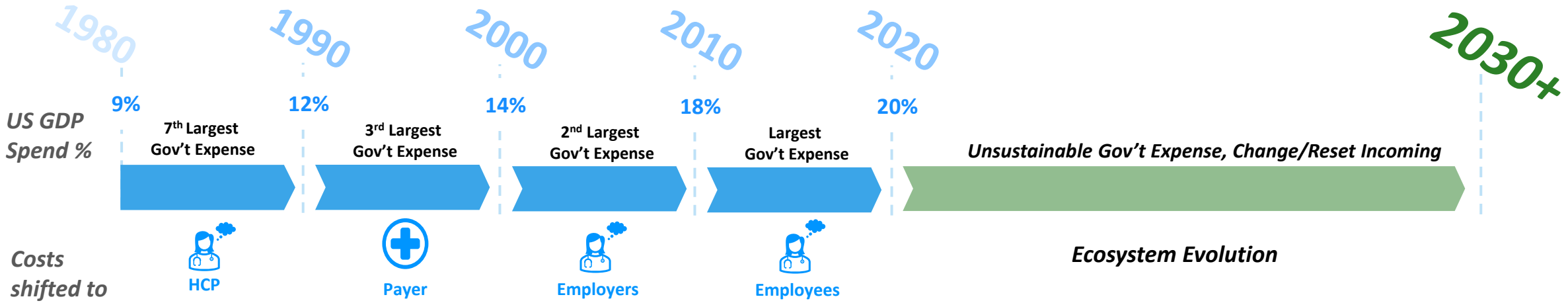
PA Consulting has partnered with the ACEP Emergency Medicine Data Institute to bring insights & data from the Clinical Emergency Data Registry (CEDR) to bring value to healthcare.

Bringing Ingenuity to Life.
paconsulting.com

Partnership Data Solutions

Chris Plance

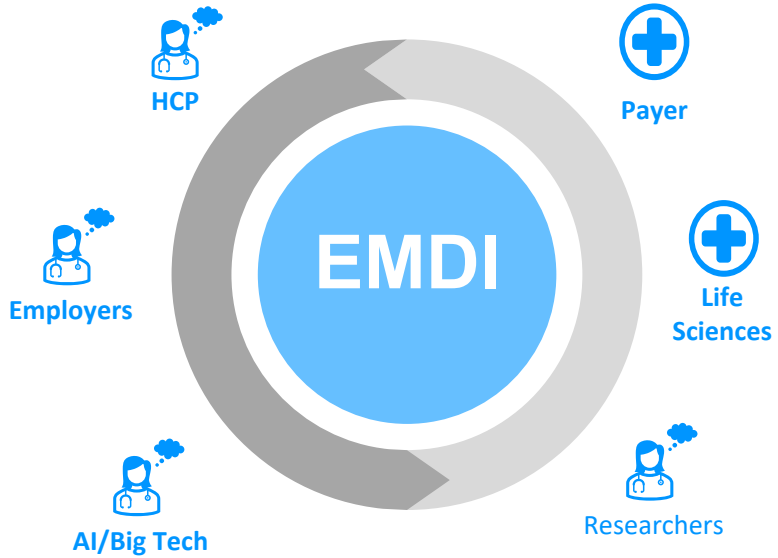
Economic and environmental pressures have created a future with significant change and opportunity



The future requires collaboration across the ecosystem. How does EMDI accelerate this?

Opportunities exist for solutions that:

- Quantify impact on long term medical cost management
- Develop tools to avoid continuous and increasing pressure on pricing
- **Enable the success of physicians in delivering care under new constraints**



Currently developing partnerships under 5 compelling umbrella use cases

Clinical Trial Recruitment and Design

Label Extension

Pharmacovigilance & Safety

Training AI Models

Real World Evidence for Medical Devices

Partnership Data Solutions

Chris Plance

Real world data drives value across the healthcare ecosystem

The EMDI dataset offers unique insights by providing one of the largest real world data sets from EDs across the country.

Inside-Out					Outside-In				
R&D	Medical	Regulatory	Market Access	Commercial	Patients	Provider	Caregivers	Payer	Research / Academia
What **adverse events** are patients experiencing and how does this compare to what we saw in trials?			Are there patterns associated with patients being **taken off treatment**?		Which **patient profiles and characteristics** have the best response to the product?			What are the **underserved sub-populations** for the product?	
What are priority **unmet needs** that the product may be able to address?			Are there **other indications** the product is being prescribed for?		What patient, caregiver, and HCP challenges exist where **support services** may be helpful?			What personalized content would support patient / HCP decisions (i.e. **clinical decision support**)?	
What data can be used to **support regulatory approval** of new indications and/or claims?			What **sub-populations** demonstrate **better outcomes** from the product vs competitors?		What are we seeing by sub-population that can help provide **dosing guidance** to providers?			What opportunities exist for a **companion diagnostic** for providers to target the product?	
What **patient behaviors** do we see that point to new delivery, dosing, and lifestyle preferences?			What opportunities exist for **label expansion**?		What **symptoms** are patients experiencing and what **interventions** are required?			What levels and factors are we seeing relative to **compliance with treatment / adherence**?	

Illustrative – not intended to be comprehensive

Partnership Data Solutions

Chris Plance

How to engage EMDI and the typical process evaluating a partnership

Contact EMDI	Review Requirements	Test Extract	Contracting	Implementation
Need ACEP Name Phone Email	Exploratory sessions to clearly define the use case for data, any gaps that may exist, and design a technical outline for integration	Deidentified data extract created for testing	Final review of partnership by ACEP governance, and commercial contract in place.	EMDI technical team works with you to deploy the solution.

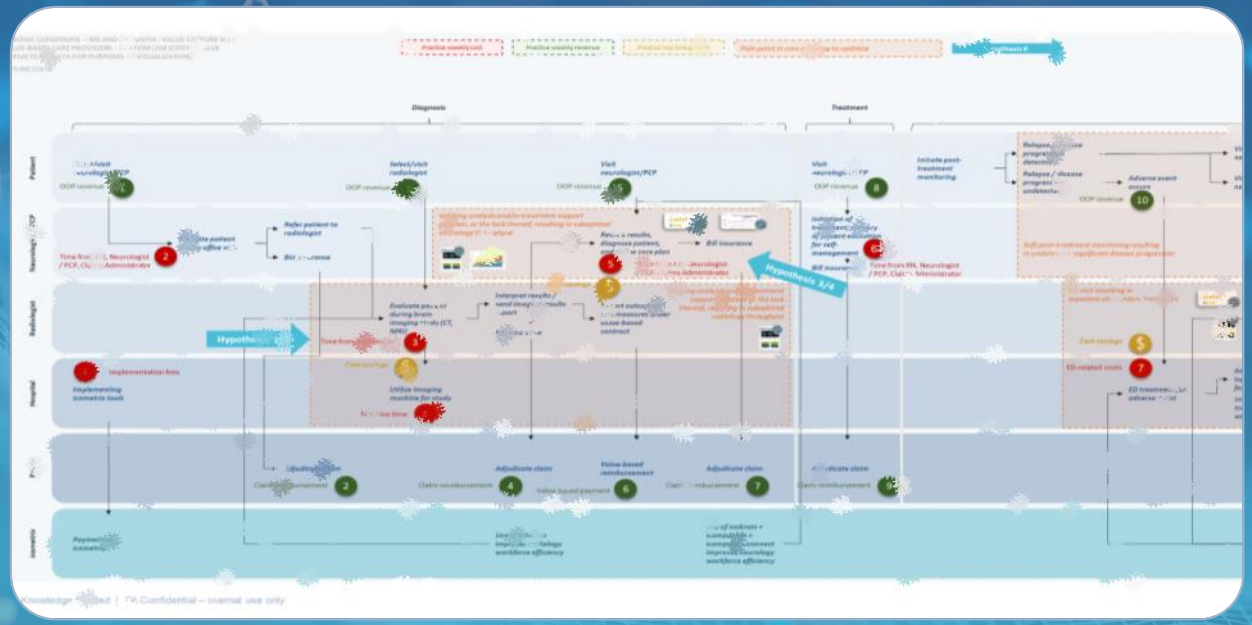
Making data driven opportunities real

European MedTech company focusing on AI solutions in neurology used RWE to obtain one of the first CPT codes based on AI.

Key Points:

1. Three years of data collection
2. Attempts to work with a registry related to their disease state were unsuccessful
3. Data was collected while in market with the solution

4. Access to registry data may have accelerated their path to reimbursement by a year



EMDI is built

Essential Considerations

Data Relevance

Confirming the availability of key data elements & ensuring there is a sufficient number of representative patients

Demographic and clinical information such as age, gender, race, primary diagnosis, symptoms, lab orders & testing, and comorbidities

Treatment information such as drug name, dosage, frequency, and procedure name

Health-related outcome information such as heart attacks, strokes, disease progression, or hospitalization

Data Reliability

Ensuring proper data governance and management policies are in place so data can be trusted

Frequent data integrity checks to confirm the completeness, consistency, and accuracy of data

Availability of data dictionary that includes data elements, definitions, and allowable values/ranges

Ensuring data management processes and procedures such as maintaining version control, data provenance and audits

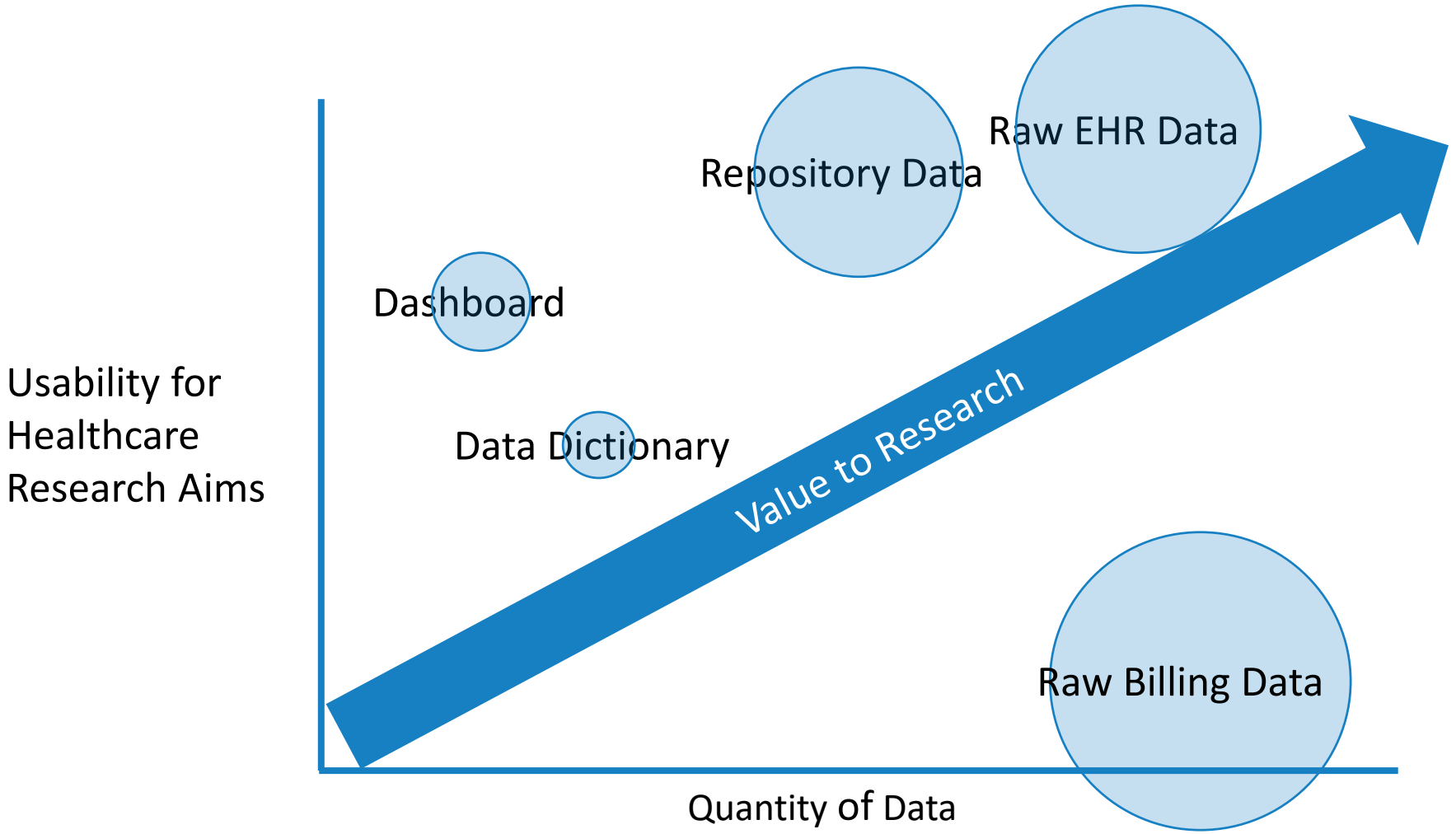
Security controls in place to ensure patient data is confidential and de-identified

© PA Knowledge Limited | Confidential between PA and intended recipient

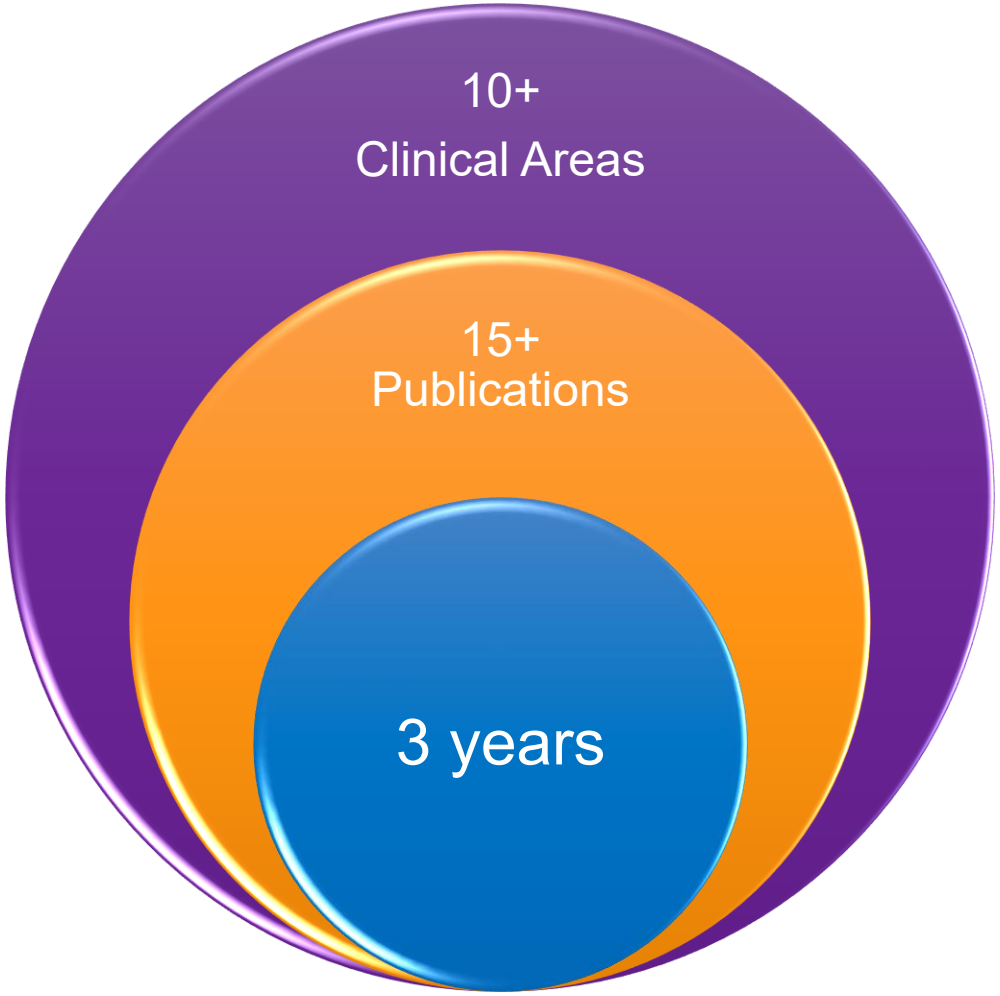
Quality & Research Solutions

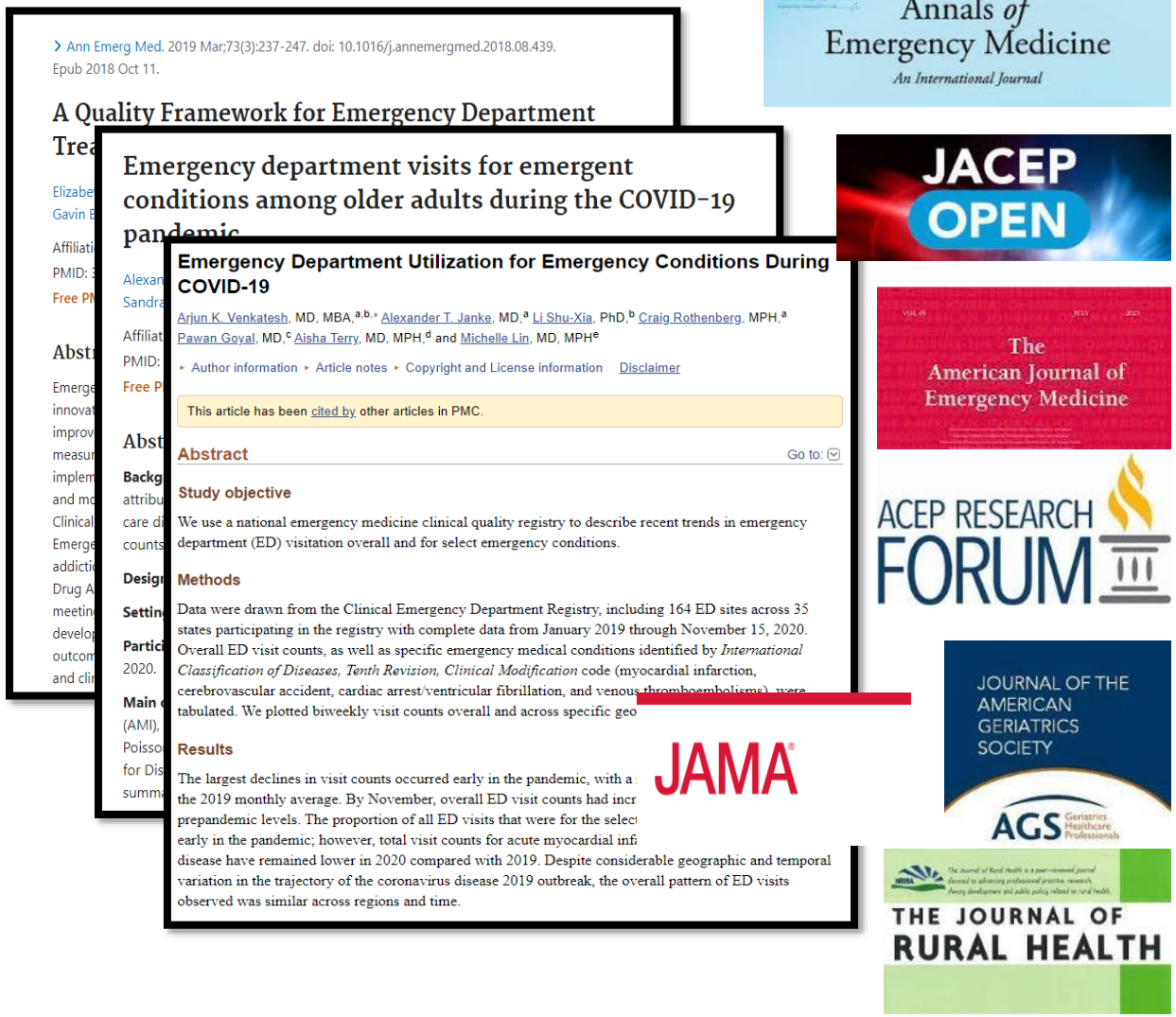
Dhruv Sharma, MS

Data Sources & Value

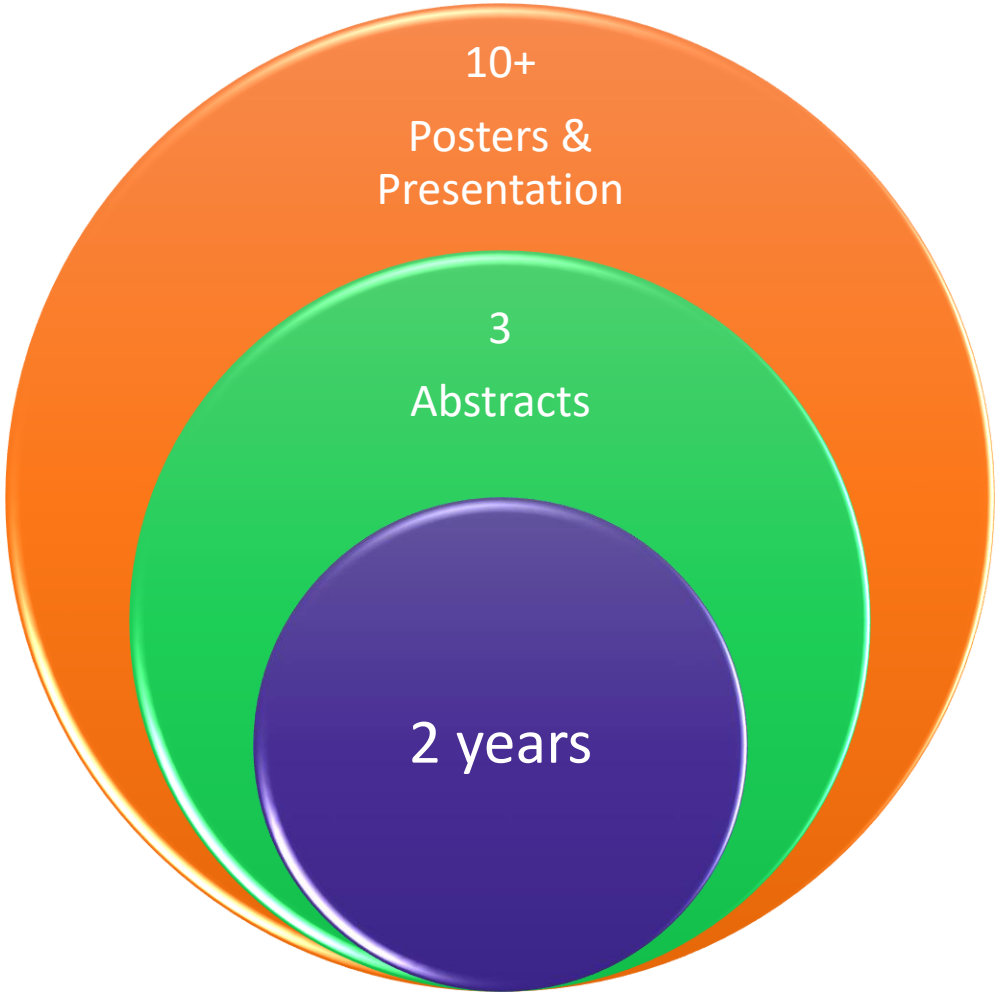


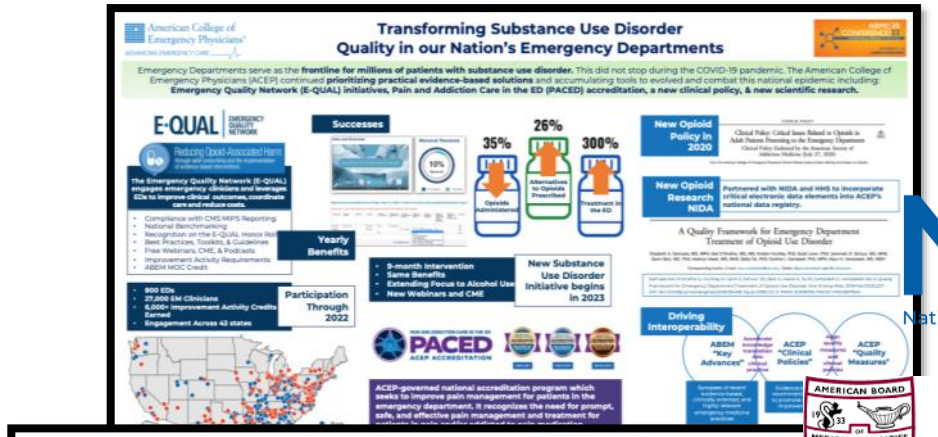
EMDI Data Enabled Research & Publications

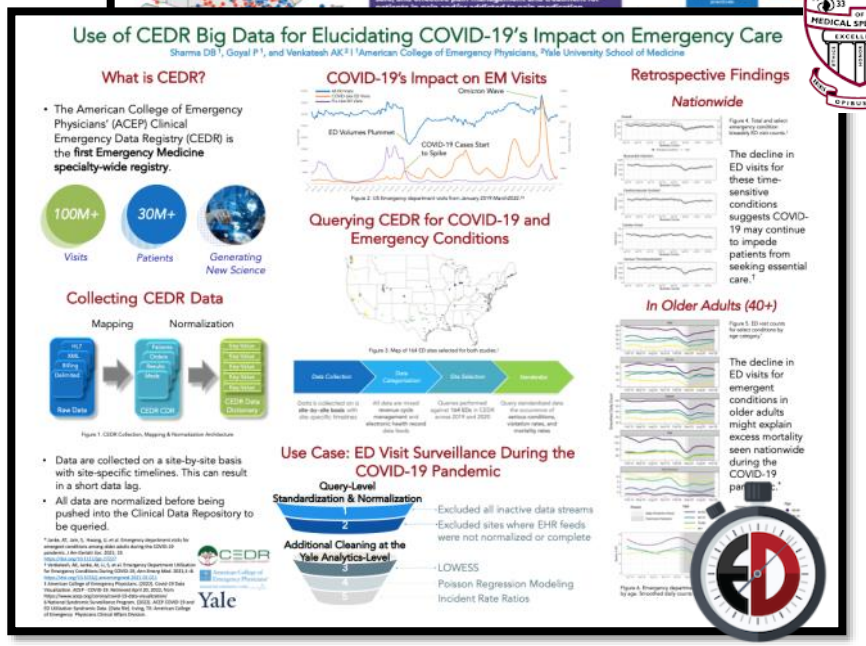




Conferences







tdwi

NAHQ®
National Association for Healthcare Quality

American Board of Medical Specialties
Higher standards. Better care.®

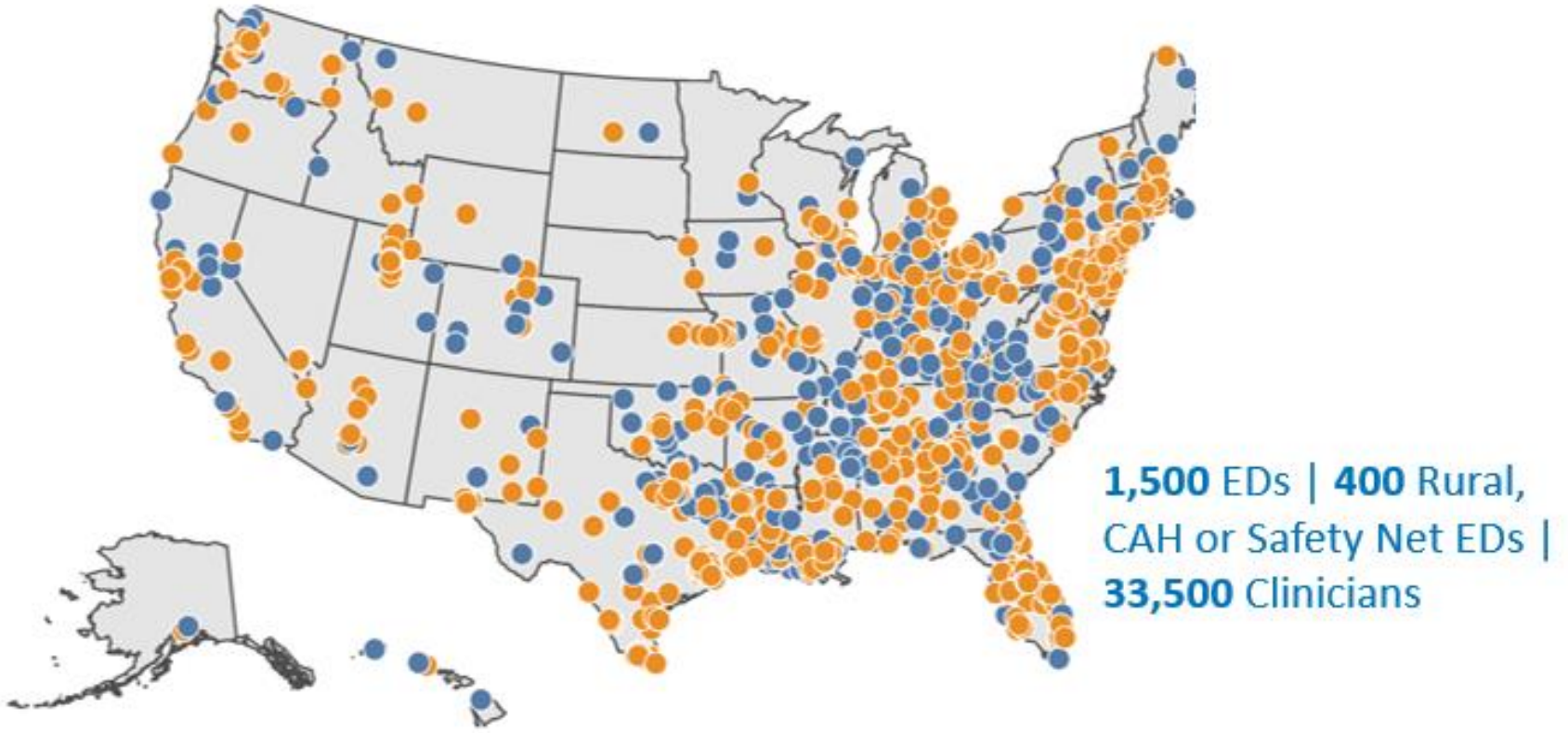
HIMSS 22

MCBK

EDBA
Emergency Department Benchmarking Alliance

E-QUAL is

A National Learning Collaborative of 1,500+ EDs utilizing educational & QI resources focused on specific clinical topics



E-QUAL Mission

“Engage emergency clinicians & leverage emergency departments to improve clinical outcomes, coordination of care & reduce costs”

Current Initiatives

Past Initiatives

E-QUAL Quality Improvement Platform

American College of Emergency Physicians® | E·QUAL EMERGENCY QUALITY NETWORK

Hi Cindy

2022 | Site | Opioid | Admin | E-QUAL Admin

D365 Test Hospital

Opioid Wave V

Activity Tracker

Use the E-QUAL portal to track and complete activities for the Wave V Opioid Initiative. Activities are aligned with E-QUAL webinars and educational offerings but can be completed at any time during the learning period.

Pre-Wave Assessment — Quality Readiness Assessment

To better understand the current state of quality improvement in your ED, please complete the Pre-Wave Quality Readiness Assessment. This tool will help us understand the challenges and obstacles that your ED faces, tailor our toolkit and educational offerings to address critical gaps, and provide you with benchmarking information to support your ED leadership.

Activity 1 — Kick-Off

Sign the E-QUAL Participation Agreement and upload your list of local clinicians and leaders.

Activity 2 — Capabilities Assessment

Take inventory of your current quality improvement structures for opioid use disorder (OUD) care including harm reduction and treatment initiation. All submissions by **Friday, March 18, 2022** will receive a feedback report in 30 days.

Activity 3 — Get Waivered

Start your Get Waivered Campaign and join the national movement of ED leaders who are sparking efforts to get clinicians in their department waivered using a platform that blends lessons from practice implementation and behavioral economics.

Activity 4 — Benchmark I

Submit benchmark data to assess current performance **(November 2021 through January 2022)** on ED practices for patients with opioid use disorder or non-fatal opioid overdose. Data must be submitted by **Friday, April 15, 2022** in order to receive a benchmark report within one month.

Waivered Threshold

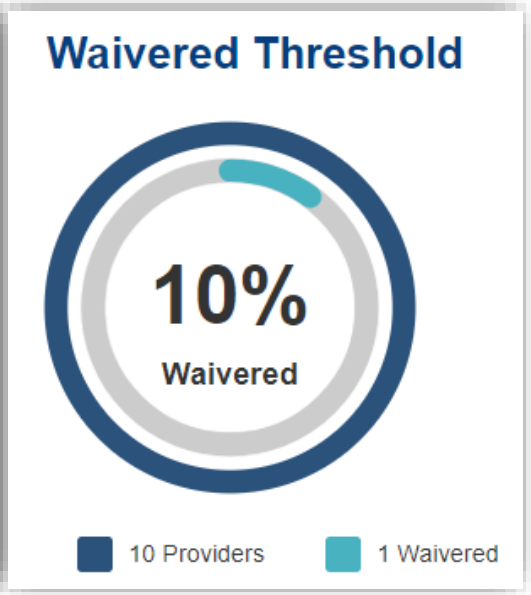
Providers | 0 Waivered

Report Download

- Capabilities Assessment Report
- Benchmark Report I
- Benchmark Report II
- Monthly Progress Report Card
- Certificate of Completion

Resources

- E-QUAL Opioid Tool Kit
- Opioid E-QUAL Portal Activities and IA Credit



Data must be submitted for by Friday, April 15, 2022 in order to receive a personalized benchmark report.

Please click on 'Save' after making any (or all the) edits to the chart. When finished, click 'Complete'.

Record Number	Exclusion Reasons	Patient Age	Patient Sex	ED visit for opioid overdose	Substance Use Evaluation in the ED	Take Home Naloxone offered in the ED?	Treatment administered in the ED?	Treatment prescribed at discharge?	Overdose prevention or harm reduction practice discussion documented	Referral to substance use disorder treatment offered	Delete Row
PRE-001	Died in ED		Female	Yes	Community…						
PRE-002			Female			Yes - Dispe…		Yes, Bupre…	No		
PRE-003				No							

None
Yes, Buprenorphine
Yes, Methadone
Buprenorphine offered (patient declined)
None, already in treatment
None, left before ED treatment complete

+ Add New Row

Sample E-QUAL Reports

American College of Emergency Physicians

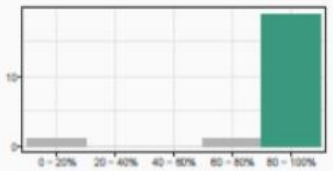
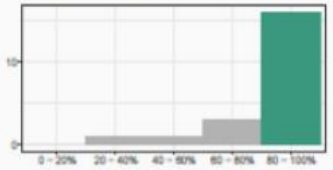
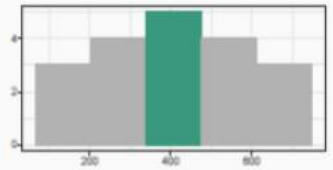
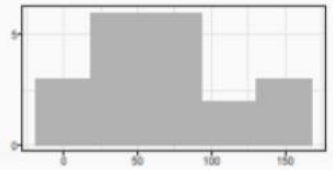
E·QUAL | EMERGENCY QUALITY NETWORK

E-QUAL Stroke Initiative

Stroke Wave III Pre-Wave Benchmarking

Thank you for participating in Wave III of the E-QUAL Stroke Initiative. A total of **X EDs** submitted data for this activity, of which X focused on ischemic stroke like you. If you have any questions about your report please email **equal@acep.org**

Site Name: TEST DEMO SITE

	Your ED	Among E-QUAL EDs
Percent of Patients Admitted or Transferred (Versus Discharged)	100%	
Severity Assessment Performed in the ED	100%	
Mean ED Length of Stay (In minutes)	404	
Mean Time From ED Arrival to CT Performed (In minutes)	N/A	

American College of Emergency Physicians

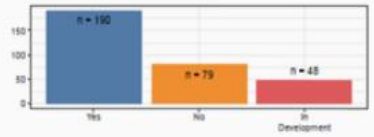
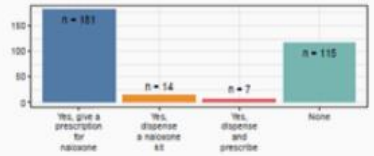
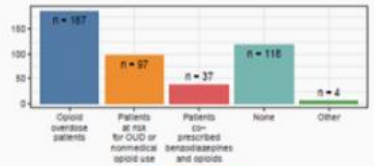
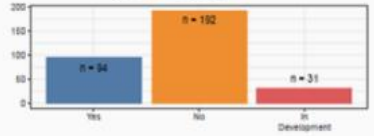
E·QUAL | EMERGENCY QUALITY NETWORK

E-QUAL Opioid Initiative

Wave V Opioid Response Capabilities Feedback Report

Thank you for participating in Wave V of the E-QUAL Opioid Initiative. A total of 317 EDs submitted data for this capabilities assessment. If you have any questions about your report please email equal@acep.org

Site Name: Example Emergency Department

	Your ED	Among E-QUAL EDs
Does your ED prescribe or dispense naloxone to any patient who is treated for overdose?	No	
Does your ED provide naloxone to patients after an opioid overdose?	Yes, give a prescription for naloxone	
Who do you provide naloxone to? (check all that apply)	Opioid OD pts	
Does your ED offer patients who have survived a drug overdose the opportunity to speak with a peer recovery specialist?	No	

American College of Emergency Physicians

E·QUAL | EMERGENCY QUALITY NETWORK

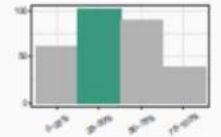
Opioid Initiative

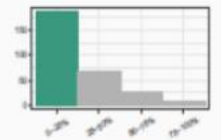
Post-Wave V Benchmarking Report

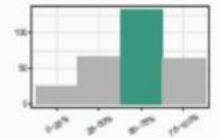
Thank you for participating in Wave V of the E-QUAL Opioid Initiative. A total of 287 EDs submitted data for this benchmarking activity. If you have any questions about your benchmarking report please email **equal@acep.org**

Site Name: Example Hospital

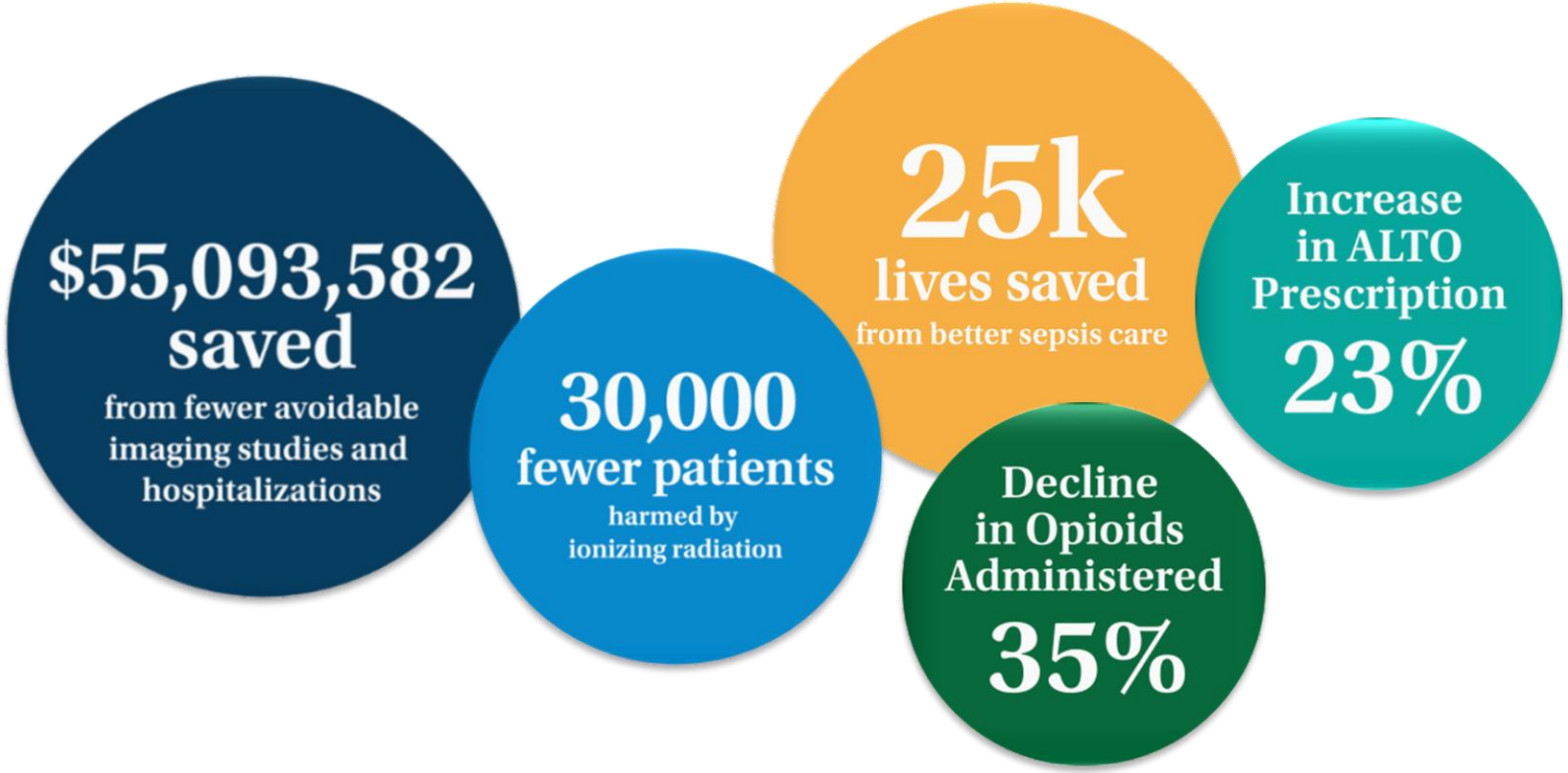
	Your ED	Among E-QUAL EDs		
		Min	Median	Max
Clinical Case Mix				
Ratio of Overdose to OUD Patients Sampled	30%	0%	50%	100%
Harm Reduction				
Take Home Naloxone Offered in the ED	0%	0%	18%	100%
Overdose Prevention or Harm Reduction Practice Discussed or Documented	80%	9%	60%	100%







E-QUAL Successes



Engaging with ACEP

Rami R. Khoury, MD, FACEP

Clinicians: MIPS\Quality, Business Analytics, Utility Apps, MOC

Hospitals: Quality, Analytics\Benchmarking

Research: Largest EM Database, Research Platform

Industry

- **Pharma**
- **Device Manufacturers**
- **Business Services**
- **Software**

Professional Societies: Data Management Networking

Data Source Providers: Data Collaboration

Why EMDI?

ACEP:

- Largest Emergency Medicine Association in the world.
- Considered the authority on Emergency Medicine.

Why EMDI?:

- Emergency Departments are the front door of hospitals & the US healthcare system.
- We touch every specialty, so we are much more than just emergency care.

ACEP + You Opportunity

- Help realize the value of data
- Enhance Operations, Delivery Models
- benchmarking across the healthcare continuum
- Tap into ACEP's network of experts (staff & members)
- Collaborate with EMDI participant & industry network
- Partner with ACEP to build something special

This is ACEP

- **ACEP's Experts:** Come from all walks, ACEP staff to physicians
- **Multiple Practice Types/Specialties:**
  - Pain and Addiction, EMS, Observation, Urgent Care, Hyperbaric, Wound Care & more. Not all hospital based.
  - Creates a patient journey thru the healthcare continuum.
- **Diversity in Practice Location & Skill Sets:**
  - Large academic centers, community academic centers, community EDs, Rural EDs,& critical access hospitals.
  - Allows access to a wide variety of patient populations with the same & different needs.

American College of Emergency Physicians®

ADVANCING EMERGENCY CARE

Q&A

Todd B. Taylor, MD, FACEP

Chris Plance

Dhruv Sharma, MS

Rami R. Khoury, MD, FACEP

Continue the Conversation with your ACEP Development Team Lead

Carla Duryee | cduryee@acep.org

Julie O'Heir | joheir@acep.org

Lori Vega | lvega@acep.org

ACEP
PARTNER
COLLABORATIVE

NEXT UP

11:30 am – 12:30 pm **Lunch |** Harmony A

12:30 – 1:30 pm **Breakout Sessions & Coffee Chats**

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

ACEP PARTNER COLLABORATIVE

NEXT UP

1:30 – 1:45 pm	Break
1:45 – 3:00 pm	Speed Networking Melody CF

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE