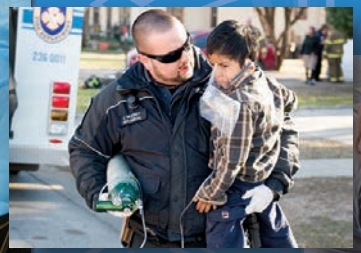
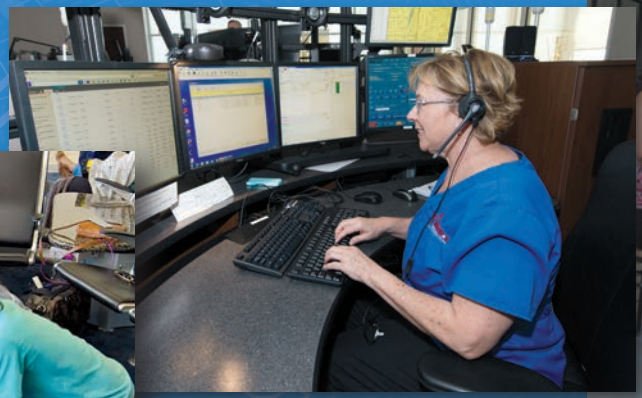
# Helping to Synchronize Healthcare in Our Community

## ANNUAL CAREHOLDERS' REPORT: 2018





MEDSTAR MOBILE HEALTHCARE

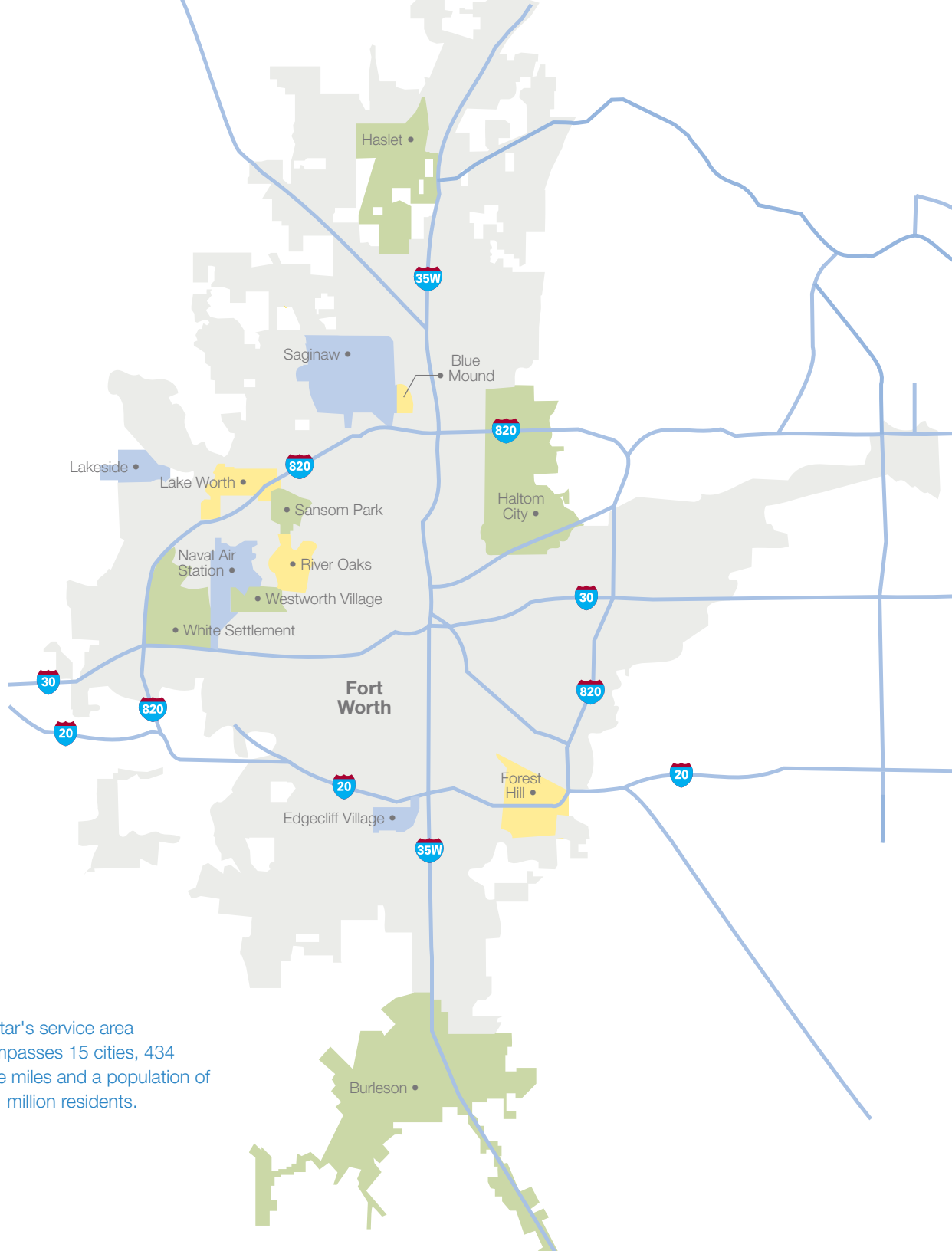
To provide world-class mobile healthcare with the highest-quality customer service and clinical excellence in a fiscally responsible manner.

**MEDSTAR'S MISSION STATEMENT**

MEDSTAR MOBILE HEALTHCARE

# Careholders' Report: 2018






MedStar's service area encompasses 15 cities, 434 square miles and a population of over 1 million residents.

# MedStar had another amazing year in 2017!

We continue to be one of the most recognized EMS agencies locally, nationally and even internationally. Our teams produce outstanding performance, continually meeting the needs of our growing community in a way that has made MedStar among the most clinically proficient, operationally effective and fiscally efficient EMS systems in the world.

One of the significant milestones this year was adoption of major revisions to the interlocal cooperative agreement and uniform EMS ordinance that serve as the foundational documents for the creation and operation of the system. These documents had not changed substantially since they were originally promulgated when the MedStar system was established back in 1986. As you can imagine, our community and the healthcare system has changed dramatically, and the changes adopted by all the member jurisdictions not only reflect the new environment we operate in, but prepares us for the changes that will be coming in the future. Some of the significant changed adopted in the new Interlocal and EMS ordinance include:

- Specific authorization for the Authority to conduct Mobile Integrated Healthcare (MIH) services
- The ability for the Authority to offer and provide services beyond the geographic boundaries of the member jurisdictions
- Creation of the “First Responder Advisory Board” (FRAB) with two seats from the FRAB as non-voting members on the Authority Board
- Renaming the “Area Metropolitan Ambulance Authority” to the “Metropolitan Area EMS Authority”

The unanimous passage of these and other changes to the Interlocal agreement and uniform EMS ordinance not only help assure MedStar will be able to effectively adapt to future changes, but reinforces MedStar as the system design which delivers the best clinical proficiency, operational effectiveness and economic efficiency for the residents of the service area.

Even with the dramatic changes in healthcare payment policies, our business office staff continues to do a fantastic job turning the services we provide for the community into the revenue we need to provide one of the highest clinical and operationally functioning EMS systems in the country without any reliance on local tax support.

Our Mobile Integrated Healthcare (MIH) service delivery model took a substantial transition this year toward the concept of “EMS 3.0”. Most notably, we were approached by insurers with an idea to completely change how they pay for EMS services—moving away from a fee-for-transport model toward a population-based model. As we continue to work through that possible change, we are encouraged by the trust and value that the payers have come to place in MedStar and our team members to test patient-centered, innovative service delivery models. MedStar continues to be the “go-to” source for healthcare systems and EMS providers across the country who are considering testing new models for EMS service delivery.

We are extremely blessed to have the opportunity to serve this community. It is an honor that all our team members and I work tirelessly to earn, every day and with every patient contact.

Douglas R. Hooten, MBA, CEO

## Operations

- Employees: **515**
- Ambulances: **57**
- Annual response volume: **146,668**
- Annual staffed unit hours: **251,755**

## Community Profile

- Resident population served: **1,016,963**
- Service area: **434 sq. mi.**
- Median family Income: **$54,876**
- Median age of population: **32.4 years**

## Fleet Facts

- MICU distance driven: **2,434,322 mi.**
- MICU hours: **156,090 hrs.**
- Fuel consumed: **416,774 gal.**

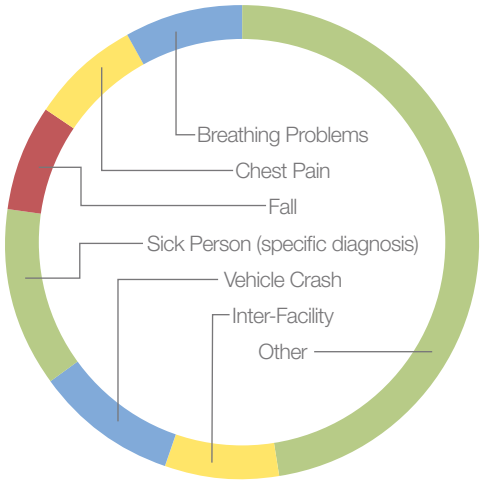
## Logistics Facts

- Number of IV catheters used: **67,750**
- IV start kits: **52,800**
- 1 liter saline bags: **18,466**
- Number of $O_2$ delivery devices used: **54,615**
- Number of sheets used: **81,270**
- Number of intraosseous needles used: **990**
- Number of Narcan deliveries: **1,059**
- Preventative maintenance performed: **714**

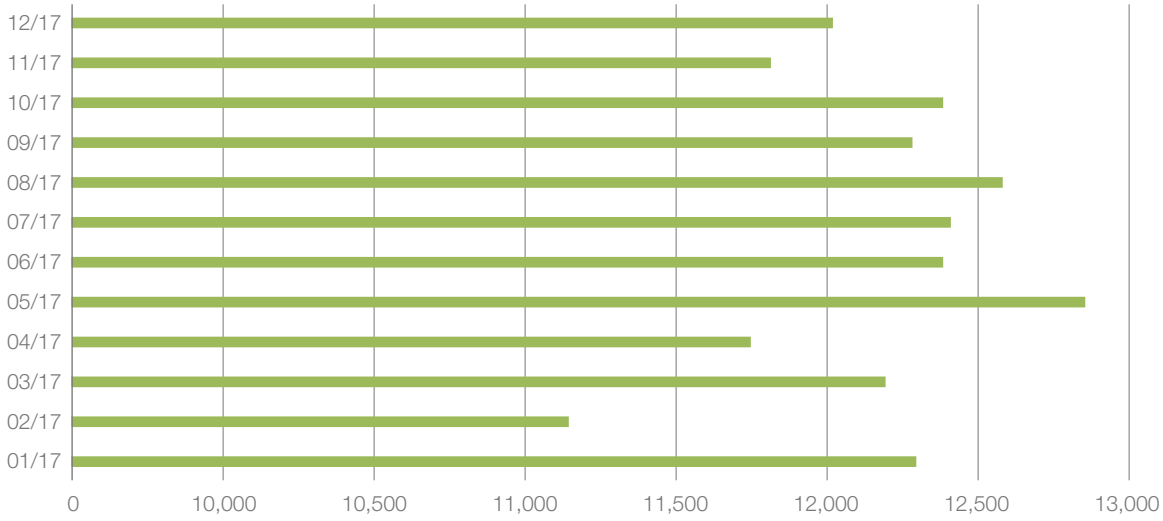
## 2017 Milestones

- New interlocal agreement and uniform EMS ordinances approved by all member jurisdictions
- First in-house paramedic program completed with all students passing national exam on first attempt
- First Responder Advisory Board (FRAB) established
- Two new MIH contracts executed with area healthcare stakeholders
- Burleson Fire Department becomes the first fire department first response agency to integrate with MedStar's patient care reporting system

### EMERGENCY MEDICAL DISPATCH RESPONSE DETERMINANT




### AMBULANCE RESPONSE MONTHLY VOLUME



## MedStar's Training Academy Excels

The MedStar Training Academy saw 983 students in 2017. This is an increase from 668 in 2016.

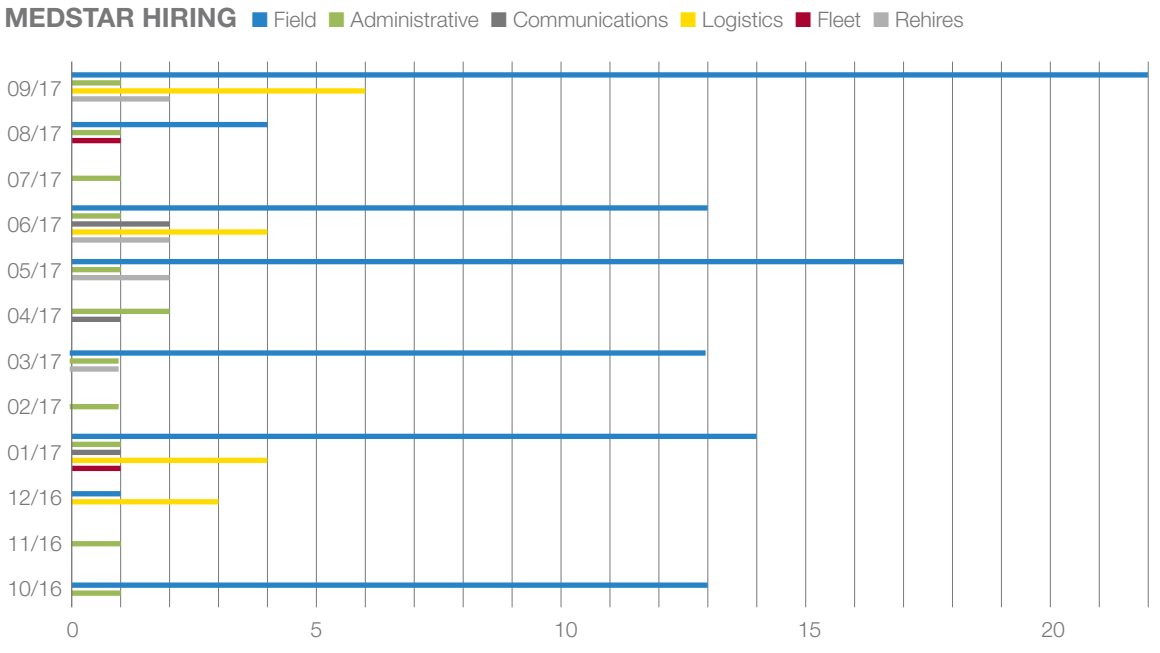
Seven Emergency Medical Technician Courses were conducted in 2017, including 2 that are new programs in partnership with the Northwest ISD.

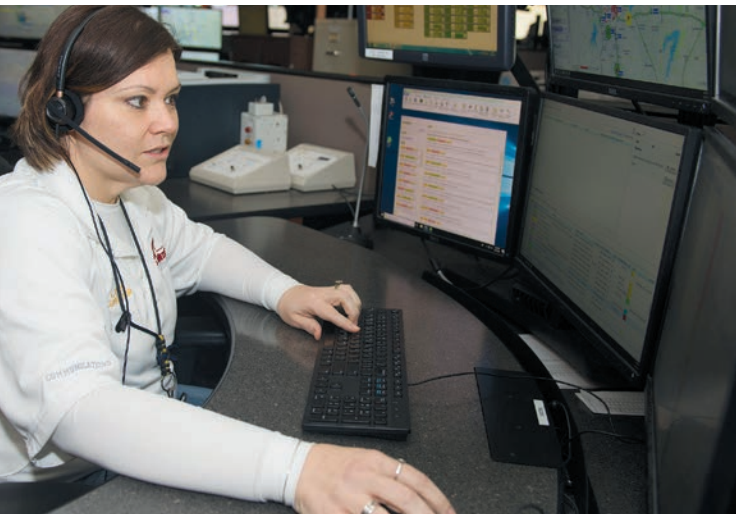
We partnered with Tarrant County College to conduct a paramedic course for ten MedStar EMTs. The course began in February of 2017 and finished in October of 2017 (1 week ahead of schedule due to the success of the students). The class had a 100% completion rate and a 100% success rate on the first attempt of the National Registry exam.

The Paramedic partnership course with TCC consisted of 2 employees that had previously completed the MedStar EMT program. These two employees are now serving as Advanced Paramedics in the MedStar system.

MedStar's inaugural paramedic class.

MedStar routinely works closely with local and national media on important public information.





MedStar's Communication Center strives to exceed the National Standard of Emergency Dispatch. Our callers deserve customer service that meets their needs as well as the patients we serve. We experience every 9-1-1 call with our callers, providing reassurance and instruction. We don't get a second chance to make our first impression! ~ Leslie Elam, Communications Center Supervisor


Above, MedStar supervisor Jason Wiemer receives the Charles Geren Veterans Award. Left, Stars of Life 2017

## 442 Special Events Covered

- All Western Parade
- Fort Worth Stock Show and Rodeo
- Cowtown Marathon
- Spring Break at the Zoo
- Texas Motor Speedway
- Main Street Arts Festival
- Something Wonderful Concert
- Mayfest
- Fort Worth Fourth
- Tarrant County Back to School Round Up
- TCU Football
- Tarrant County Heart Walk
- Fiestas Patrias
- Parade of Lights
- Armed Forces Bowl

## Fort Worth Safe Communities Coalition

MedStar serves in leadership roles for several Fort Worth Safe Communities Coalition task forces:

- Falls Prevention
- Road Safety
- Elder Abuse
- Disaster Preparedness
- Overdose Prevention and Drug Safety

## Golf Tournament

MedStar hosted our 11th annual Golf Tournament benefiting the MedStar Foundation and the Fort Worth Drowning Prevention Coalition. Mayor Betsy Price drove a specially branded MedStar Drowning Prevention ambulance for the event. The tournament raised over $30,000 for the Foundation and the Drowning Prevention Coalition.


## MedStar Explorers

In 2017, MedStar created MedStar Explorer Post 664 for area youth to learn about careers in EMS and ways to provide community benefit. In addition to becoming trained in CPR and first aid, Explorer Post members (pictured below) conducted a food drive to deliver meals to the homeless in our community.


## Trick or Treat and Home for the Holidays

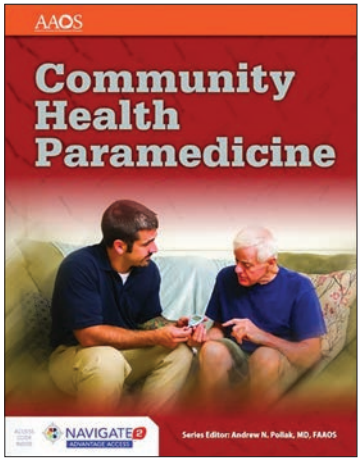
On Halloween, MedStar used Halloween decorated ambulances and crews in costume to take two medically challenged children and their families trick or treating. We also provided courtesy transportation for two area nursing home residents from their skilled nursing facilities to their family's home to enjoy Thanksgiving dinner with their family.

MedStar participated in a fundraiser for SafeHaven where runners walked a mile in women's' shoes

## Mobile Healthcare Programs

MedStar's Mobile Integrated Healthcare programs continue exponential growth. These programs are designed to enhance experience of care for the patient, reduce preventable 9-1-1 calls, emergency department visits and hospital admissions. Partnerships with home care and hospice agencies also provide essential care coordination for patients enrolled in these programs. Through November 2017, nearly 13,000 patients have been enrolling our MIH programs.

Additionally, four MedStar team members served as authors for the new Community Health Paramedicine textbook—the first text for paramedics to become certified as Community Paramedics.




## National Leadership

MedStar continues to share our industry innovation and leadership through presentations at national conferences, writing articles for leading trade journals, and by hosting visitors to MedStar to learn about both our MIH programs and our high-performance/high-value EMS model.

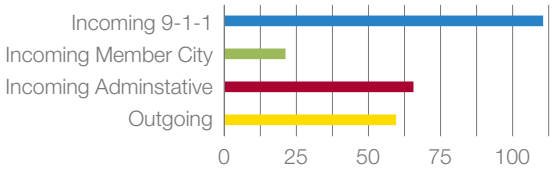
- 2017 National Articles Published: **19**
- Presentations at National Conferences: **22**
- Communities visiting MedStar since 2013: **221**
  - States: **43**
  - Countries: **7**


Australians visit MedStar

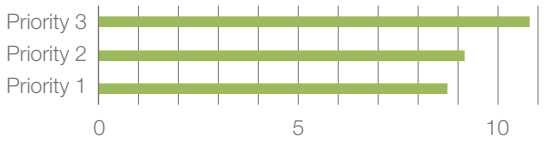
## Patient Experience

MedStar is committed to enhancing our patient's experience of care. For 5 years we have contracted with the EMS Survey Team to conduct external patient experience surveys to gain information about how our patients perceive their experiences with our team. We include individual team member patient experience scores as part of promotional and performance evaluation criteria. We are very proud that our team members take patient experience seriously, and demonstrated by the fact MedStar routinely scores in the top 5% of all EMS Survey Team agencies.

### 2017 CALL VOLUMES (x1,000)




### 2017 AVERAGE RESPONSE TIME (minutes)




## EMS Survey Team Survey Highlights (Jan. 2018, scale of 0–100%, least to most satisfied)

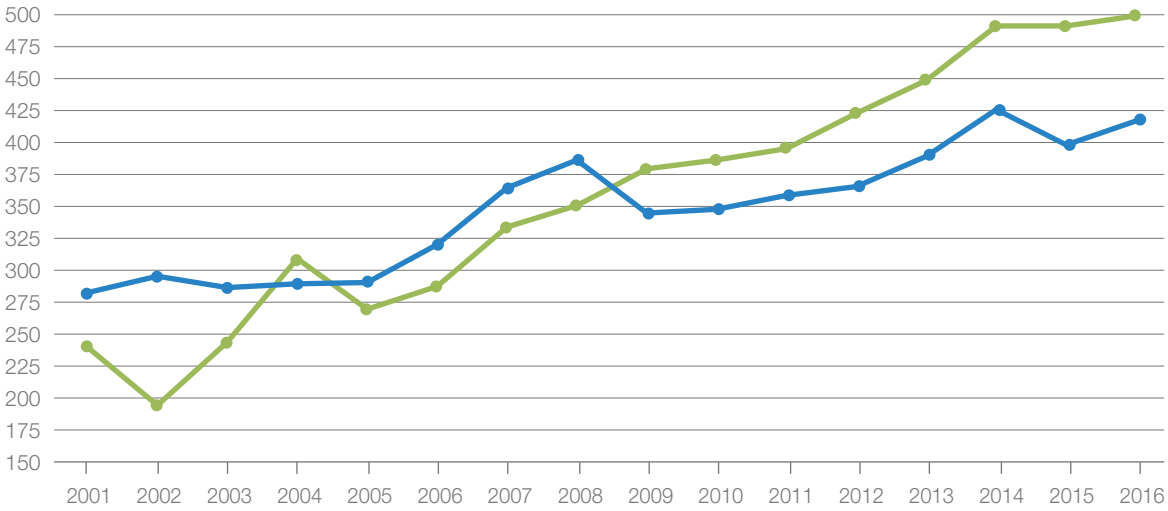
| | MedStar | National |
|---|---|---|
| Extent to which you were told what to do until the ambulance arrived | 97.5 | 91.4 |
| Cleanliness of the ambulance | 99.5 | 94.4 |
| Skill of the person driving the ambulance | 97.7 | 94.0 |
| Extent to which medics cared for you as a person | 97.6 | 94.4 |
| Skill of the medics | 97.1 | 94.0 |
| Care shown by the medics who arrived with the ambulance | 97.0 | 94.5 |
| Professionalism of the staff in our billing office | 90.1 | 87.7 |
| Willingness of the staff in our billing office to address your needs | 93.2 | 88.1 |
| Extent to which the services received were worth the fees charged | 100.0 | 88.4 |
| Likelihood of recommending this ambulance service to others | 98.0 | 93.4 |
| Concern shown by the person you called for ambulance service | 97.4 | 92.9 |
| How well did our staff work together to care for you | 96.9 | 93.8 |

### MEDSTAR COMMUNICATIONS CENTER CALL VOLUMES

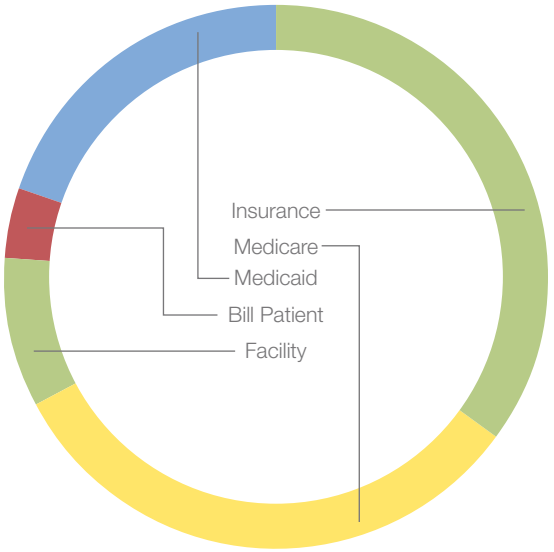
## MIH Patient Experience Highlights (scale of 1–5, least to most satisfied)

| | HUG | Admit/Readmit Prevention | Overall |
|---|---|---|---|
| Has your overall health improved with this service? | 4.76 | 4.65 | 4.71 |
| How were the instructions regarding medication and follow up care? | 4.83 | 4.84 | 4.84 |
| How helpful was the advice given to you on how to stay healthy? | 4.65 | 4.82 | 4.74 |
| How was the thoroughness of the examination(s)? | 4.60 | 4.81 | 4.71 |
| How was the quality of the evaluations and medical care? | 4.75 | 4.82 | 4.79 |
| Was there enough time taken to answer your questions? | 4.55 | 4.85 | 4.70 |
| The willingness of the medic to listen carefully to you? | 4.60 | 4.84 | 4.72 |
| The quality of the medical care provided? | 4.75 | 4.82 | 4.79 |
| The level of compassion shown by the medics? | 4.80 | 4.79 | 4.80 |
| Your overall satisfaction with the service? | 4.56 | 4.83 | 4.70 |
| Would you recommend this service to others? | 4.58 | 4.81 | 4.69 |

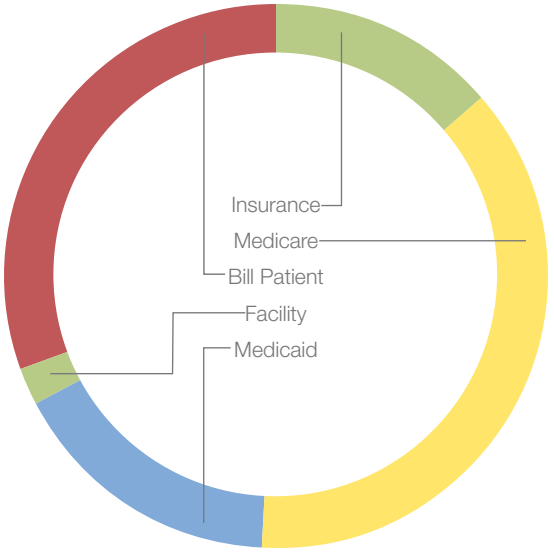
## COLLECTIONS AND COST PER TRANSPORT ($) ■ Cost Per Transport ■ Revenue Per Transport




## 2017 COLLECTED

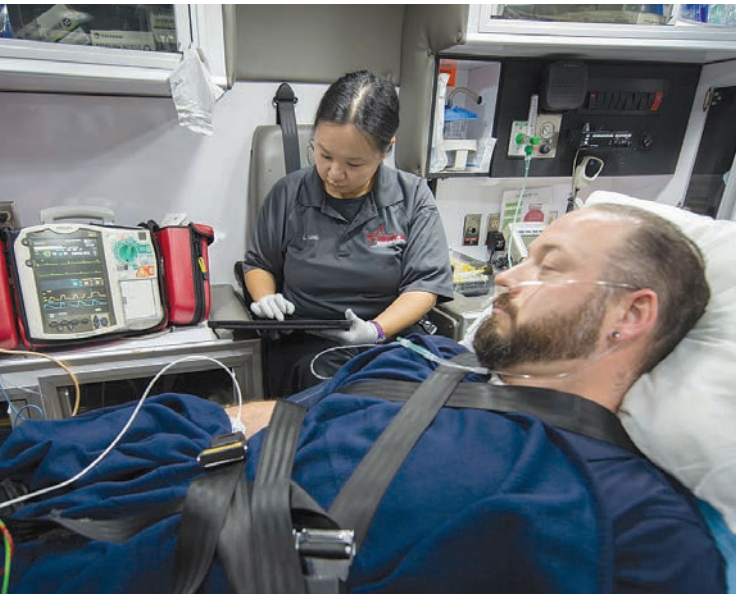



## 2017 BILLED




# What our patients say

- “[The MedStar staff] did a wonderful job of helping her see what she can do to stay out of the hospital.”
- “The book they put together for her, she reads it all the time!”
- “Yes, his overall health really improved, amazing service, it was a pilot program and it really helped stay out of the ER!”
- “I appreciate the service, and thought everything was handled really well.”
- “The whole process was very helpful to me and I appreciated it very much.”



## 9-1-1 Nurse Triage Patient Satisfaction (scale of 1–5, least to most satisfied)

| | |
|---|---|
| The alternate transportation provided | 3.93 |
| Do you feel the nurse understood your medical issue | 4.49 |
| How the nurse handled call | 4.70 |
| The 9-1-1 call taking process | 4.55 |

Over 90% of patients survey reported speaking with the nurse helped and saved time and money.


MedStar AMBUS Team deployed to Harvey

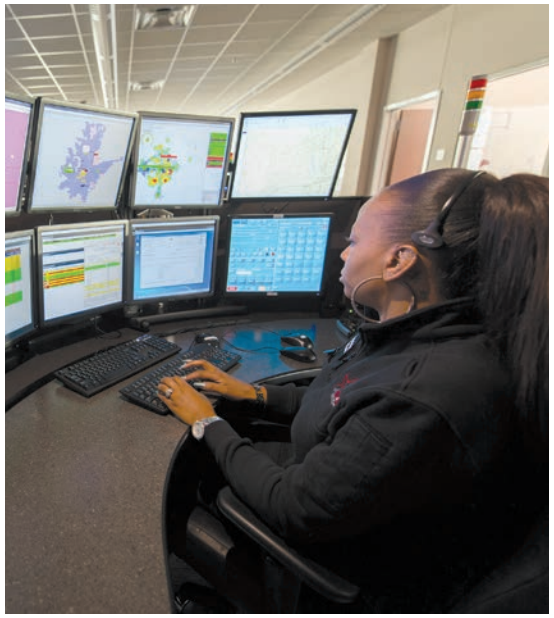
## Expenditure Savings Analysis[1]—High Utilizer Program

All referral sources. Based on Medicare rates.

- Analysis dates: Oct. 1, 2013 – Nov. 30, 2017
- Number of patients enrolled:[2,3] 581
- Ambulance trip to ED reduction: -58.0% category base

| | Base | Avoided | Savings |
|---|---|---|---|
| Ambulance Payment[4] | $419 | $5,133 | $2,120,727 |
| ED Visits[5] | $969 | $2,395 | $2,320,755 |
| Admissions | $10,500 | $462 | $4,851,000 |
| **Total Expenditure Savings** | | | **$9,322,482** |
| **Per Patient Enrolled Expenditure Savings—HUG** | | | **$16,046** |

1. Comparison for enrolled patients based on use for 12 months prior to enrollment vs. 12 months post program graduation. 2. Patients with data 12 months pre- and 12 months post-graduation 3. Includes High Utilizer and Designated System Abusers 4. Medicare Tables from CY 2012 as published 5. www.cdc.gov/nchs/data/hus/hus12.pdf 6. www.hcup-us.ahrq.gov/reports/projections/2013-01.pdf

## Patient Self-Assessment of Health Status[1]

- Analysis dates: As of Nov. 30, 2017

| | —High Utilizer Group— | | | —Admission/Readmission Avoidance— | | |
|---|---|---|---|---|---|---|
| | Enrollment | Graduation | Change | Enrollment | Graduation | Change |
| Mobility[2] | 2.29 | 2.51 | 9.4% | 22.31 | 2.54 | 10.0% |
| Self-Care[2] | 2.60 | 2.80 | 7.7% | 2.62 | 2.80 | 6.9% |
| Perform Usual Activities[2] | 2.28 | 2.63 | 15.7% | 2.28 | 2.59 | 13.4% |
| Pain and Discomfort[2] | 1.94 | 2.39 | 22.9% | 2.44 | 2.62 | 7.4% |
| Axiety/Depression[2] | 2.16 | 2.45 | 13.6% | 2.46 | 2.67 | 8.5% |
| **Overall Health Status[3]** | **5.02** | **6.97** | **39.0%** | **5.31** | **6.87** | **29.5%** |

1. Average scores of pre- and post-enrollment data from EuroQol EQ-5D-3L Assessment Questionaire. 2. Score 1–3 with 3 most favorable. 3.Score 1–10 with 10 most favorable.

## Expenditure Savings Analysis[1]—9-1-1 Nurse Triage Program

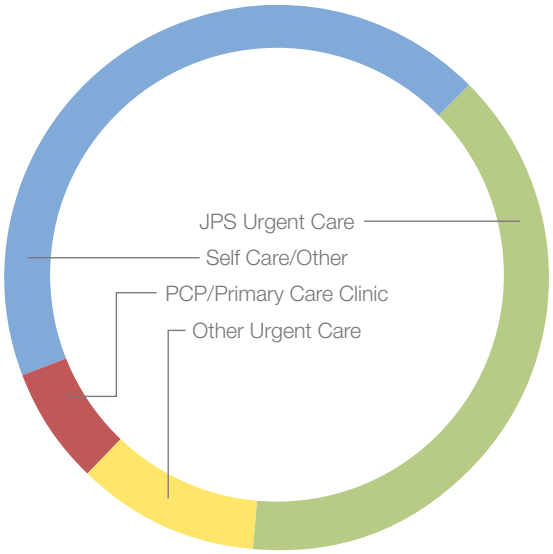
Based on Medicare rates

- Analysis dates: June 1, 2012 – Nov. 30, 2017
- Number of calls referred: 9,096
- Percent of calls with alternate response 33.3%
- Percent of calls with alternate destination 25.7%

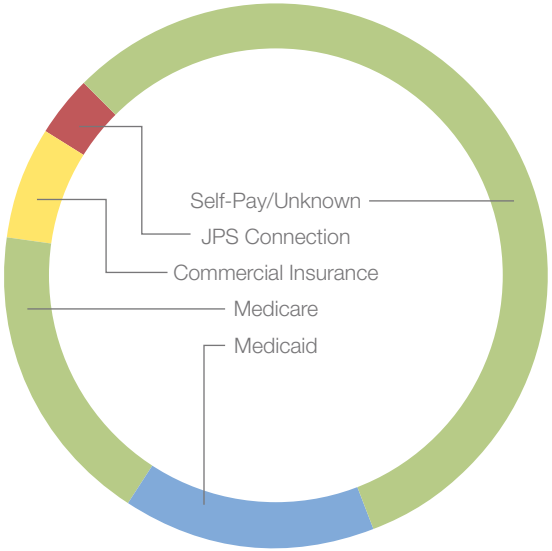
| | Base | Avoided[4] | Savings |
|---|---|---|---|
| Ambulance Expenditure[1] | $419 | $3,028 | $1,268,732 |
| ED Expenditure[2] | $969 | $2,335 | $2,262,615 |
| ED Bed Hours[3] | $6 | $2,335 | $14,010 |
| **Total Payment Avoidance** | | | **$3,531,347** |
| **Per Patient Enrolled Payment Avoidance—ECNS** | | | **$1,166** |

1. From Medicare payment tables. 2. www.cdc.gov/nchs/data/hus/hus12.pdf. 3. Provided by John Peter Smith Health Network. 4. Result of EPAB approved change to allow locus of care to include ED visit by alternate transportation.

### ALTERNATE DESTINATION BY TYPE




### PAYER MIX



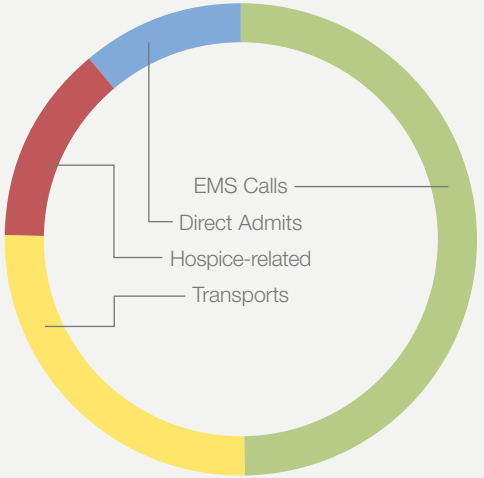

## Hospice Program Summary

- Analysis dates: Sept. 2013 – Nov. 2017

| | Number | Percent |
|---|---|---|
| Referrals[1] | 532 | |
| Enrolled[2] | 388 | 72.9% |
| Deceased | 335 | 86.3% |
| Active | 29 | 7.5% |
| Improved | 2 | 0.5% |
| Revoked[3] | 73 | 18.8% |

1. Patients referred who are identified as at high risk for voluntary disenrollment, or involuntary revocation. 2. Difference results from referrals outside the MedStar service area, or patients who declined program enrollment. 3. Patients who either voluntary disenrolled, or had their hospice status revoked.

### HOSPICE ACTIVITY



## A Letter from the Medical Director

The Office of the Medical Director (OMD)/Emergency Physicians Advisory Board (EPAB) is responsible for medical direction and oversight of the entire 9-1-1 EMS system. Our perspective however, is as an integral part of this system, rather than an external force applied to the system.

Medical Direction & Oversight spans multiple critical functions including quality assurance, protocol development, provider credentialing, training, education, research, and inter-hospital relations.

More specifically, credentialing directly addresses the provider's knowledge of medical protocols, skills and procedures to operate effectively under the Medical Director's license. QA assures that, once credentialed, pre-hospital personnel provide the highest quality medical care, from the first seconds of a 9-1-1 call to stabilization and transfer of patient care. Training & education develops the knowledge, skills, and attitudes requisite to clinically perform in a system such as ours.

The continuum of pre-hospital care has more recently been translated to the entire out-of-hospital environment, and now medical direction includes nontraditional oversight of a variety of programs for hospital readmission avoidance, chronic home care, hospice/palliative care, nurse triage, and alternative navigation of 9-1-1 patients.

We are proud to actively collaborate with our colleagues in operations, communications, administration, and finance as we navigate this exciting new realm of patient-centered and population-based healthcare. We are equally privileged to work with our EMT and Paramedic colleagues, who are no longer technicians, but clinicians, and who provide the highest quality out-of-hospital healthcare to our entire community.

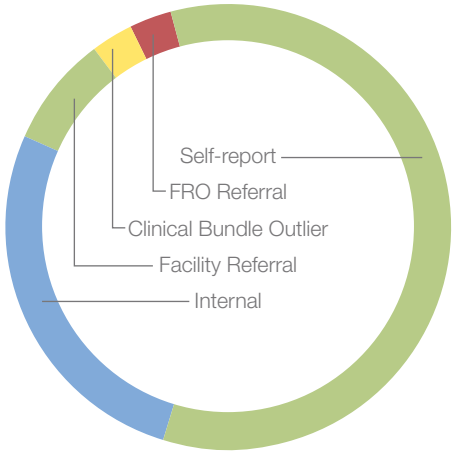
Neal J. Richmond, M.D., FACEP

## Quality Assurance

OMD is committed to providing our community with the highest quality patient care, based on evidence-based best practices. Our success as an organization relies on developing a culture of clinical excellence, and establishing a foundation for ingenuity, resourcefulness, and innovation.

To achieve these goals, our quality assurance (QA) processes are designed to track, monitor, and critically evaluate both individual sentinel events as well as system-based trends and is founded on the following principles:

**FIGURE 1**




While QA cases come to our attention through a number of avenues (hospitals, patients, physicians, etc.), Figure 1 demonstrates that the majority of these events (green) are self-reported by EMTs and Paramedics in the field.

- Quality cannot be assumed, but must actively be built into the system.
- If you do not measure, you cannot improve.
- Every clinical event provides an opportunity for individual and system improvement.

Our QA program has been designed to be strictly educational in nature, with a keen focus on remediation and knowledge translation. Providers are encouraged to identify and refer all perceived clinical care concerns without fear of retribution for themselves or their peers. By fostering a culture of self-evaluation and growth, we have been proud to find that most cases are brought to our attention for review through this "self-report" process.

## Out-of-Hospital Cardiac Arrest

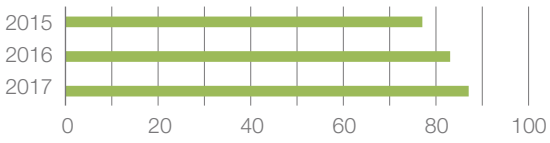
National survival rates from out-of-hospital cardiac arrest (OOHCA) remain dismal due to weak links in every step of the "chain-of-survival"—from 9-1-1 call to arrival in the Emergency Department.

Unfortunately, 9-1-1 EMS systems have traditionally focused the lion's share of their efforts on response time—from the moment the ambulance's wheels begin rolling, to the time the crew arrives on-scene. Even with the enormous resources devoted to narrowing the window for resuscitation, and even with national initiatives to improve the rates of bystander CPR, many of our communities have made little progress with this complex problem.

To address this issue in our own community, OMD has taken a laser-focus on what actually happens on-scene during a cardiac resuscitation, instead of solely focusing on how long it takes to get there. As such, every case of OOHCA is individually reviewed for the proportion of time spent doing chest compressions, as well as the rate, depth, and quality of individual compressions, recognition and treatment of lethal heart rhythms, and objective confirmation of airway and breathing management.

For example, scientific research has proven the critical value of spending as much time as possible on the chest performing CPR, even while placing IVs, pushing medications, and managing the patient's breathing. OMD has set the benchmark for time-on-the-chest or chest compression fraction (CCF) at 90% (higher than the current AHA recommendation of 60-80%). Figure 2 shows system-wide performance for 2017 in meeting this goal.

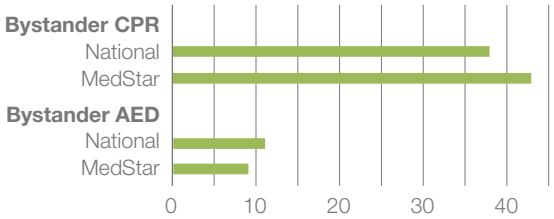
**FIGURE 2**




In addition to monitoring, measuring, and quality assuring overall 911 system performance,

OMD's responsibilities extend to the larger public health environment with the monitoring of our community's critical involvement in the chain-of survival for cardiac arrest—in particular, bystander CPR and the use of public access defibrillation (PAD).

**FIGURE 3**




To accomplish this, the entire system participates in the Cardiac Arrest Registry to Enhance Survival (CARES) which allows for the benchmarking of our community's performance against national survival statistics. Figure 3 shows that bystander CPR exceeds national rates, while use of PADs unfortunately lags somewhat behind.

We continue to work with our community partners to improve both bystander CPR and PAD utilization rates, in addition to strengthening all of the other links in the chain-of-survival.

## Airway Management

Pre-hospital advanced airway management for patients unable to effectively breathe on their own remains challenging for all EMS systems across the country. While anesthesiologists and emergency physicians spend years in training developing these skills in the relatively controlled and supervised environments of an Operating Room or Emergency Department, our EMS and First Responder personnel have to perform these procedures in some of the most challenging situations imaginable, whether in the streets or in our homes.

While many systems rely solely on their EMS providers' subjective assessment to measure the effectiveness of airway management, our system personnel are provided sophisticated electronic technology and tools to guide, measure, and thereby ensure, effective performance. Figure 4 shows the rate of successful recognition of advanced airway placement in 2017.

**FIGURE 4**

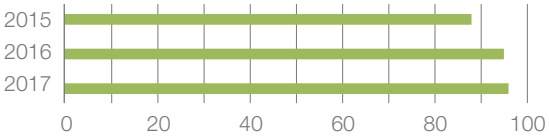



Figure 4 demonstrates year-on-year improvement in successful recognition of placement of advanced airway devices.

Left, MedStar executed an enhanced Interlocal agreement with its member cities in 2017.

Below, cardiac arrest survivor meets with MedStar rescuers

## Executive Team:

- Douglas Hooten, Chief Executive Officer
- Dwayne Howerton, OMD Chief of Staff
- Joan Jordan, Chief Financial Officer
- Dr. Neal Richmond, Medical Director
- Kristofer Schleicher, General Counsel
- Kenneth Simpson, Chief Operations Officer
- Matt Zavadsky, Chief Strategic Integration Officer

## Management Team:

- Richard Brooks, Customer Integration Manager
- Chad Carr, Compliance Officer, Paralegal
- Christopher Cunningham, Field Operations Manager
- Shaun Curtis, Support Services Manager
- William Gleason, Clinical Quality Manager
- Stacy Harrison, Controller
- Ricky Hyatt, Medical Records Manager
- Desiree Partain, Mobile Integrated Healthcare Manager
- Michael Potts, Risk and Safety Manager
- Pete Rizzo, I/T Manager
- Dale Rose, Communications Manager
- Tina Smith, Human Resources Manager
- Heath Stone, Assistant Field Operations Manager
- Bob Strickland, Business Intelligence Manager
- Susan Swagerty, Business Office Manager
- Macara Trusty, Education and Community Programs Manager

# Voting Members—Metropolitan Area EMS Authority Board of Directors:


Dr. Brian Byrd, Chairman


Dr. John Geesbreght


Dr. Janice Knebl


Steve Tatum


Dr. Rajesh Gandhi


Paul Harral

## Emergency Physicians Advisory Board

| Board Member | Representing | Specialty |
|---|---|---|
| Chris Bolton | Baylor All Saints | Emergency Medicine |
| Dan Guzman | Cook Children's | Pediatrics |
| Anant Patel | JPS | Emergency Medicine |
| Rajesh Gandhi | JPS (Trauma) | Trauma Surgery |
| Holly Baselle | Medical City-Alliance | Emergency Medicine |
| David Hanscom | Medical City-Fort Worth | Emergency Medicine |
| Steven Martin | Tarrant County Medical Society | Occupational Medicine |
| Gary Floyd, Chairman | Tarrant County Medical Society | Pediatrics |
| Dan Goggin | Tarrant County Medical Society | Psychiatry |
| Angela Self | Tarrant County Medical Society | Cardiology |
| Brett Cochrum | Tarrant County Medical Society | Family Medicine |
| John Geesbreght | THR-Harris Methodist Fort Worth | Emergency Medicine |
| Brad Commons | THR-Alliance | Emergency Medicine |
| Shawn Sanderson | THR-Huguley | Emergency Medicine |
| Michelle Beeson | THR-South West | Emergency Medicine |
| William Witham | THR (Trauma) | Trauma Surgery |

**MedStar Mobile Healthcare**

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