Introduction

**Michael Baker to Present:**

**Issue #1 – Ongoing Operational Issue**

High Healthcare Utilization by Individuals and Facilities

**Andy Teeter to Present:**

**Issue #2 – Strategic Planning for Deployment of Resources**

Four components/four TulStat Sessions

1. First-in response times (this session)
2. Advanced Life Support (ALS) deployment
3. Effective Response Force/Effective Firefighting Force
4. Staffing
Follow-Up Item Report

Communications
- CARES Story – The Frontier June 2, 2017

Legal
- HMIS Agreements Pending in City Legal
- Overall Strategy Documents Requested by SJMC and City Legal for Partnership

Adult Protective Services
- No more than a referral for documentation
- Case load exceeds staffing

Next Steps
- Transition of OU Students
- F&CS Case Manager Embed at TFD
Issue #1 – High Healthcare Utilization Impacting Fire Department Operations
Issue & Context

The issue:
- Excessive utilization of public safety resources by patients who struggle to navigate complex health care systems

The measurable goal:
- Decrease in the number unnecessary responses to high health care utilizers and complex medical patients

How does it connect to strategic outcomes:
- Well-Being, Overall Community Health, Mental Health, Homelessness
TFD EMS – CARES Process Map

- Incoming Referral
- CARES Assessment
- Care Plan Development
- Outgoing Referral
- Review/Close Case

Healthcare
Social Services
Community Resources
Measurement - CARES

How we Identify High Utilizers:

1. Fire/EMS Reports (CAD, EHR)
2. Fire Company Referral
3. Healthcare/Social Service Agency Referral

Our Goal:

20% Reduction in Utilization Post CARES Team Intervention/Assessment

<table>
<thead>
<tr>
<th>EMS Encounters</th>
<th>User Category</th>
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<tbody>
<tr>
<td>1</td>
<td>Low</td>
</tr>
<tr>
<td>2–4</td>
<td>Moderate</td>
</tr>
<tr>
<td>5–14</td>
<td>High</td>
</tr>
<tr>
<td>≥15</td>
<td>Superuser</td>
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Issue #1 – Current Performance
Current Performance Details

Data Collection Period
January 1 – June 30, 2017

Monitoring Total of 50 Patients

- High (9)
- Moderate/Low (26)
- Super-user (15)

Closed Charts – 8

- Connected & Monitoring: 5 (63%)
- Deceased: 3 (37%)
## Top Ten Utilizer Demographics

<table>
<thead>
<tr>
<th>ZIP</th>
<th>Age</th>
<th>Race</th>
<th>Gender</th>
<th>Source</th>
<th>911 Calls</th>
<th>Change</th>
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<tr>
<td>74145</td>
<td>&gt;85</td>
<td>Caucasian</td>
<td>Female</td>
<td>TFD Field</td>
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<tr>
<td>74128</td>
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<td>Caucasian</td>
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<td>Male</td>
<td>Data Flag</td>
<td>18</td>
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</table>

### Status

- Well-Being
- Improve overall health

### What it means

Impacting the utilization of the top ten is difficult despite connection to community services.
Top Ten Utilizer Demographics

80% Caucasian

90% Female

60% Located by TFD Data Review

What it means

Disparity among population groups, gender, and geography indicate a potential gap in services and requires additional research.

Status

Well-Being

Improve overall health
Geographic Distribution

30% of Top 10 Utilizers are in 74128
### Successful Referrals

<table>
<thead>
<tr>
<th>2017 Response Count</th>
<th>Nature of Call</th>
<th>Intervention</th>
<th>Reduction Post Intervention</th>
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<tbody>
<tr>
<td>26</td>
<td>Lift Assist</td>
<td>Wheelchair Repair</td>
<td>85%</td>
</tr>
<tr>
<td>14</td>
<td>Lift Assist</td>
<td>Wheelchair Repair</td>
<td>100%</td>
</tr>
<tr>
<td>3</td>
<td>Hoarding</td>
<td>Social Service Refer</td>
<td>100%</td>
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<tr>
<td>23</td>
<td>Lift Assist</td>
<td>Home Health Refer</td>
<td>49%</td>
</tr>
<tr>
<td>18</td>
<td>Cardiac Health</td>
<td>OU Health Refer</td>
<td>100%</td>
</tr>
<tr>
<td>9</td>
<td>OD, Fall</td>
<td>OU Health Refer</td>
<td>100%</td>
</tr>
<tr>
<td>26</td>
<td>Diabetic</td>
<td>Refer Assisted Living</td>
<td>92%</td>
</tr>
<tr>
<td>15</td>
<td>Lift Assist</td>
<td>Social Service Refer</td>
<td>100%</td>
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<tr>
<td>19</td>
<td>Lift Assist</td>
<td>Home Health Refer</td>
<td>88%</td>
</tr>
<tr>
<td>18</td>
<td>Lift Assist</td>
<td>Home Health Refer</td>
<td>94%</td>
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</table>

**Status**

[Image of status indicator]

**What it means**

Referral to appropriate service providers and assistance with functional limitations often achieves high results.
### High Utilizer Referrals

<table>
<thead>
<tr>
<th>Referral Agency</th>
<th>Count</th>
<th>Existing Services</th>
<th>Services in Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morton Clinic</td>
<td>6</td>
<td>Home Healthcare</td>
<td>6</td>
</tr>
<tr>
<td>Family &amp; Children’s Services</td>
<td>4</td>
<td>Family &amp; Children’s Services</td>
<td>3</td>
</tr>
<tr>
<td>Adult Protective Services</td>
<td>3</td>
<td>Indian Health Center</td>
<td>2</td>
</tr>
<tr>
<td>Life Senior Services</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OSU Medical Center</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indian Health Center</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legal Aid</td>
<td>1</td>
<td></td>
<td></td>
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</tbody>
</table>

**Status**

- **Well-Being**
  - Improve overall health

**What it means**

Working, and communicating, with other agencies is essential to decreasing utilization.
2016 Medical 911 Cells By Zip Code - January 1, 2017 thru December 31, 2017

The zip codes are color coded by highest total number of Medical calls being the darkest blue to the least number of calls to the lighter blues. The labeled numbers are the number of super users in each zip code which is defined by having 15 or more calls during a year.
2017 Medical 911 Calls by Zip Code Map - January 1, 2017 thru June 30, 2017

The zip codes are color coded by highest total number of Medical calls being the darkest blue to the least number of calls to the lighter blues. The labeled numbers are the number of super users in each zip code which is defined by having 15 or more calls during a year.
### 2016 Medical 911 Call Volume Drivers

- **Super Users: 15+ Calls**
  - 2.40% of Users
  - 40.60% of Call Volume
- **High Utilizers: 5-14**
  - 8.79% of Users
  - 17.20% of Call Volume
- **Low 1**
  - 56.96% of Users
  - 19.25% of Call Volume
- **Medium 2-4**
  - 31.76% of Users
  - 22.95% of Call Volume

**Utilizer Category**
- HIGH
- LOW
- MEDIUM
- SUPER
# Strategic Direction & Actions

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Action Plan / Next Steps</th>
<th>By When</th>
<th>Hurdles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce High Utilization by Individuals and</td>
<td>Continue to Develop Processes and Policy</td>
<td>September 2017</td>
<td>Legal Review</td>
</tr>
<tr>
<td>Facilities through Data Analysis and Referral</td>
<td></td>
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</tr>
<tr>
<td>Develop Improved Data Analysis Processes</td>
<td></td>
<td>September 2017</td>
<td>Deep Dive and Evaluate Patterns</td>
</tr>
<tr>
<td>Evaluate High Facility Programs</td>
<td></td>
<td>December 2017</td>
<td>Partnerships, Education Plan Development</td>
</tr>
<tr>
<td>Develop Program Sustainability</td>
<td>Seek Long Term Funding and Program Development</td>
<td>December 2017</td>
<td>Funding, Staffing, Labor,</td>
</tr>
</tbody>
</table>
Issue #2
Strategic Planning/Deployment of Resources
Issue #2 - Strategic Goals

Goal 1: Fire Station Location
Use a realistic, reproducible, data-based methodology to determine the optimal placement of current and future stations based on identified life risk in the city.

Goal 2: Advanced Life Support Placement
Use a realistic, reproducible, data-based methodology to determine the most advantageous current stations for placement of ALS personnel.
Goal 3: Multiple Company Stations

Identify which current and future stations should house one staffed apparatus and which current and future stations should house two or more staffed apparatus based on the predominant risk and call demand.

Goal 4: Staffing

Determine the most effective use of the personnel and equipment funded by Vision funding package.
Issue #2 – Current Performance
Issue & Context: Goal #1

• The issue
  – Fire station location in Tulsa based on life risk and consistent with nationally recognized standards

• Our measurable goal
  – Respond to 90 percent of all emergency incidents within six minutes of the call to 911

• How we connect to strategic outcomes
  – Connected to The City Experience and Well-Being
Arrival within 6 minutes from 911 call
Target: 90% of all emergency calls
2017 Fire Stations

Value = relative life and fire risk by fire station first-in response areas

Status
East Tulsa
South Tulsa

Well-Being
The City Experience

Mayor/Council Goals

Current Fire Stations

Risk Total
- 0.000000 - 0.990000
- 0.990001 - 1.990000
- 1.990001 - 2.990000
- 3.990001 - 4.41
Criteria for “First-In” Response

Risk Ratio = Probability + Severity + Failures

Risk Inputs:

1. Probability
   Single and multi-family dwelling population divided by 10,000 in station area

2. Severity
   Actual number of incidents in station area divided by 2000

3. Failures
   Ratio of runs that the department cannot make within four minutes travel time in an existing or proposed fire station’s area
Why a Risk Ratio?

Allows for variable sized areas vs. fixed areas based on standard station spacing

Most of Tulsa – standard three mile diamond
  • Methodology provides confirmation of need

Downtown – three closely spaced high-demand stations

Certain outlying areas/perimeter – less closely spaced due to population density and actual incident experience
“Standard Station Spacing”
Resource Allocation Report – Station Spacing

**Metropolitan downtown spacing**
Closely spaced stations with overlapping coverage – 1 to 1.5 driving miles between stations

**Urban**
Standard spacing – three driving miles between stations

**Suburban**
Low density spacing – up to four driving miles between stations (depending on risk)

**Rural**
Up to 10 driving miles between stations
What is normal or “acceptable” risk?

Fire Stations 3, 7, & 21
What it means:
Effect of East Side Station 33
(In progress)

= normal or acceptable risk

Mayor/Council Goals

Well-Being

The City Experience

Status

East Tulsa

South Tulsa

Risk Total

0.000000 - 0.990000
0.990001 - 1.990000
1.990001 - 2.990000
2.990001 - 3.311351
What it means:
East Side - Proposed
• New 33 (in progress)
• New 34
• Move 27

= normal or acceptable risk
What it means:
South Side
• Move 18
• Move 23

= normal or acceptable risk
What it means:
Citywide – optimal
• Least moves or new stations

= normal or acceptable risk

Status
East Tulsa
South Tulsa

Mayor/Council Goals
Well-Being
The City Experience

Current Fire Stations
Proposed Move or New

Risk Total
- 0.000000 - 0.990000
- 0.990001 - 1.990000
- 1.990001 - 2.966842
<table>
<thead>
<tr>
<th>Station</th>
<th>Current / As Is Risk</th>
<th>Future State Risk</th>
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<td>14</td>
<td>0.71</td>
<td>1.04</td>
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<td>18</td>
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<td>32</td>
<td>2.30</td>
<td>1.76</td>
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<td>35</td>
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<tr>
<td>Strategy</td>
<td>Action Plan / Next Steps</td>
<td>By When</td>
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<td>--------------</td>
<td>--------------------------------------------------------------</td>
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<tr>
<td>Strategy #1</td>
<td>Construction: New 33 (formerly “8”) Personnel funded by Vision</td>
<td>July 2019</td>
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<td>Strategy #2</td>
<td>Funding: New 34 (no personnel) Move 27 (no personnel) Move 18 (no personnel)</td>
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<tr>
<td>Strategy #3</td>
<td>Funding: Move 23 (no personnel) New 35 (Vision personnel)</td>
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