Is your service out of control?

Donald Locasto, MD
Medical Director, Cincinnati Fire Department
World Choir Games 2012 Cincinnati USA
Who feels like they work too much?
Rising EMS Call Volume Doesn’t Mean More Funding, Chief Says

By Mary Rose Roberts

Many mid-sized fire departments are experiencing a rising demand for EMS [http://firechief.com/ems/funding-fire-based-ems-20100401/?smte=wl] in expanding coverage areas. For example, the Mesa (Ariz.) Fire Department must serve a 128-square-mile coverage area and at the same time keep EMS response times down, said Harry Beck, the city's fire chief. The 471-person
What is an acceptable work load for an EMS unit?

• Arbitrary
• Factors
  • Profit driven
  • Cost cutting
  • Inefficiencies in the system
Measures of work load

- **Blunt instruments**
  - Total calls/year.....day
  - Average calls/unit/day

- **More sophisticated measures**
  - **Calls per Unit Hour (CUH)**
    - How many calls dispatched per unit hour of service time
  - **Unit Hour Utilization (UHU)**
    - What percentage of time is your unit actually “working”
    - Private ambulance industry measure
    - Applicability to the fire service questionable
What is an acceptable work load for an EMS unit?
Measure the results of system modifications

More equal distribution of the work
CFD Transport System Reconfiguration

- Population: 280,000
- EMS Calls: 54,000
- Old EMS System
  - dual tiered
  - 8 BLS Ambulances
    - EMT/EMT
  - 4 ALS Rescue Units
    - PM/PM
How did we measure workload?

• No solid data source
• Many different conflicting sources
• 8 BLS Ambulances (EMT/EMT)
  ▪ 66% of the transport resources
  ▪ Responded to 80% of the call volume
• 4 ALS Rescue Units (PM/PM)
  • 33% of the transport resources
  • Responded to 20% of the call volume
CFD Transport System Reconfiguration

• Old
  • dual tier
  • 8 BLS Ambulances
    ▪ EMT/EMT
  • 4 ALS Rescue Units
    ▪ PM/PM

• New
  • single tier
  • 12 ALS Medic Units
    ▪ EMT/PM
Data for 45 days following reconfiguration
What is a control chart?

- Study of a **process** (EMS call volume) over a time period.
- indicates if the process is in a state of statistical control
- also is used to
  - Identify a data points considered to be statistically 'unlikely' *(out of control)*
  or
  - Is the change due to a natural variability of the process *(in control)*
Who uses control charts?

- Major manufacturing companies
- Healthcare organizations
- Governmental organizations
Did the new single tier EMS system equally distribute the work?

- 12 ALS Medic Units (new)

vs

4 ALS and 8 BLS units (old)
Data after transport system reconfiguration
CONTROL CHART
Total Medic Unit Dispatches: 45 day period BEFORE Moving M18

UCL 524.43
CL 460.08
LCL 395.73


Apr 6 - May 20
AVERAGE RUNS PER DAY
after adjustment

RUNS/DAY

UNIT
MEDIC 2
9.1
MEDIC 3
9.2
MEDIC 9
9.0
MEDIC 12
8.4
MEDIC 17
9.3
MEDIC 19
11.6
MEDIC 23
10.3
MEDIC 24
11.4
MEDIC 29
11.6
MEDIC 46
10.2
MEDIC 51
11.2

Cincinnati
DEPARTMENT OF EMERGENCY MEDICINE
CONTROL CHART
Medic Unit Dispatches: 45 day period AFTER moving M18 (21)
Key Points: Control charts

• Retrospective review of system processes

• Can be used to measure the changes caused by system modifications

• Not a crystal ball, but can help with future planning
# Cincinnati Fire Department

## Ambulance and Rescue Unit Run Statistics

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Questions