

How a Fire Department Used Prescriptive Analytics to Transform Community Healthcare

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Data – Driving the Direction of Government
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Experience the commitment®



**Care beyond
hospital walls**

**Healthier families
with lower costs**



Traditional Care
61% non-emergent
transported to ED



FD CARES
27% non-emergent
transported to ED

Kent Fire Department



- Registered Nurse
- Firefighter Emergency Technician
- Social Worker



- Respond to 911 callers with non-emergent medical conditions
- Deliver proactive care to high-risk, high-cost residents in response area



Single Vehicle Response – cabulance
Freeing up emergency unit availability





✓ Passed legislation

✓ Hired health providers

✓ Defined non-emergent dispatch codes

✓ Obtained partners

✓ Generated funding

✓ Secured data-sharing agreements

Improving community care value requires a shift in using analytics to monitor and report what has happened, to using prescriptive analytics to guide decisions.

Making better decisions by moving from “what happened” to “what-if”





???

What-if?

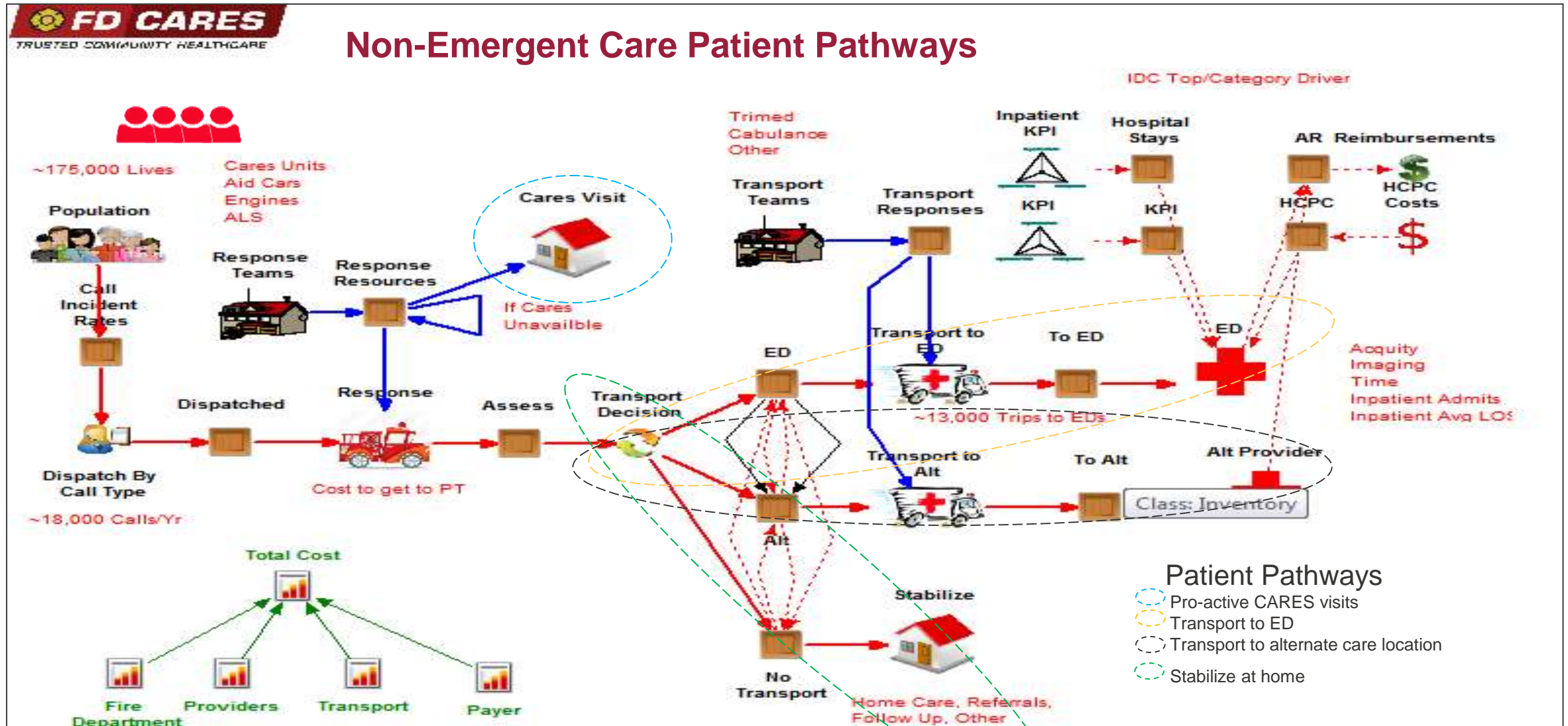
What's best?

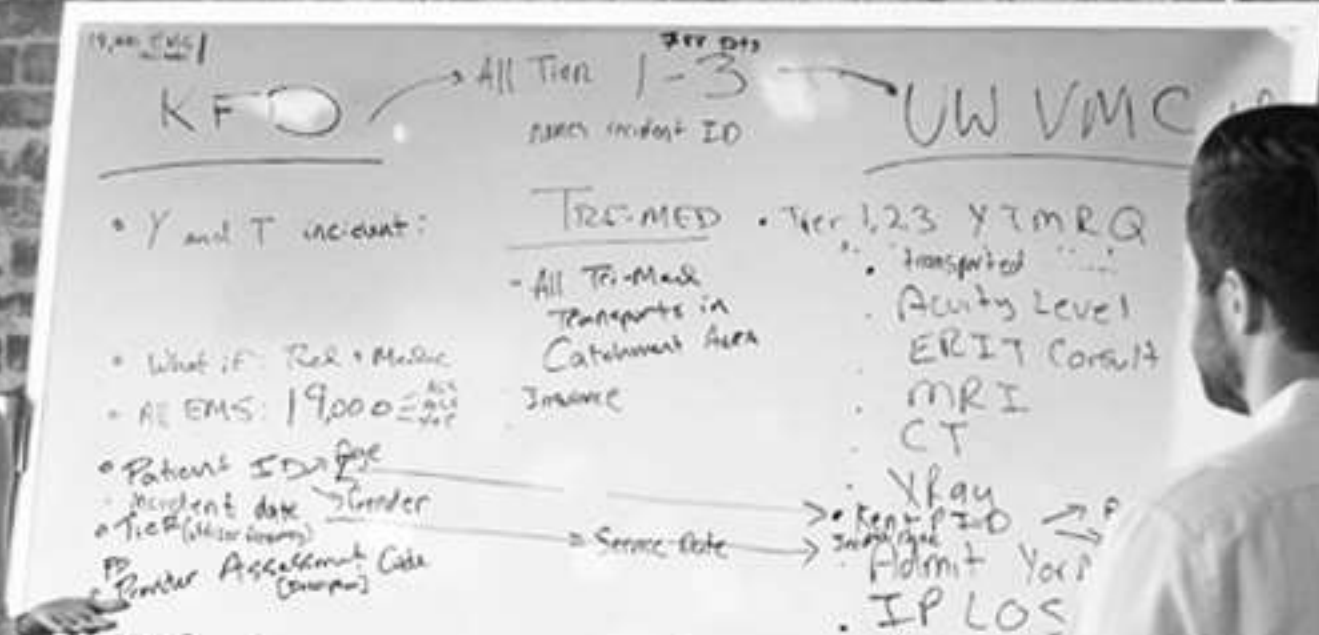
Prescriptive Analytics Approach

- 1) **What is the value of the FD CARES approach to community health management?**

- 2) **How to drive further improvements.**
 - **direct more to appropriate care?**
 - **stabilize more patients at home?**
 - **divert to a sobering clinic?**
 - **divert to a mental health clinic?**
 - **increase proactive home services?**

Next-Generation Optimization: The Intelligent Model











Data across an episode of care

CONNECTING :

- 911 call
- EMT response
- Ambulance transport
- ED visit
- Payers

Results: Current Impacts and Potential Future Benefits

Scenario	Dept. Reduced Costs*	Health System Reduced Costs*	Improved Care Utilization	Patient Experience	Overall Impact Rating
1. What is the value of the FD CARES innovative NEMS approach to community health management?	↓ \$600 K	↓ \$1,000 K	↓ 200 ED visits and 75 alternate care visits ↓ 150 X-ray, 20 MR, 110 CT	Lower experience of care at higher costs	
2. What if more non-emergent 911 patient incidents are directed to appropriate care?	↓ \$350 K	↓ \$600 K	↓ 300 ED visits ↓ 130 X-ray, 10 MR, 100 CT	Better Experience of Care at Lower Costs Better Continuity of Care	
3. What if appropriate non-emergent 911 patient incidents are directed to a Sobering Clinic?	↓ \$350 K	↓ \$500 K	↓ 170 ED visits ↓ 40 X-ray, 0 MR, 40 CT		
4. What if appropriate non-emergent 911 patient incidents are directed to a Mental Health Clinic?	↓ \$350 K	↓ \$400 K	↓ 160 ED visits ↓ 10 X-ray, 0 MR, 15 CT		
5. What if FD CARES stabilizes more patients at home?	↓ \$350 K	↓ \$600 K	↓ 375 ED visits ↓ 160 X-ray, 12 MR, 120 CT		
6. What if FD CARES increases proactive home services?	↓ \$350 K	↓ \$550 K	↓ 235 ED visits ↓ 210 X-ray, 10 MR, 120 CT		

Red = negative impact

Blue = some positive impact

Green = best positive impact

No significant changes found in the average scores of: ED wait times, NYU score, Risk Score, ED LOS, IP LOS and Acuity

* Findings are directional in nature, not exact and are expected to be under-estimated due to the proxy calculation of costs based on the Centers for Medicare & Medicaid reimbursement rates and data quality gaps. Health System Cost Savings include PSF lowered costs. Cost savings could potentially be greater by 150% to 200% dependent upon payer mix. Care utilization reductions assume that services were not required at alternative care sites.

Lessons Learned & Challenges

**Data
Quality**

**Connecting
Individuals**

**Real Costs
of Care**

**Data
Sharing
Agreements**

Key Project Successes

- Demonstrated that FD CARES has a **positive impact on the community** which it serves, all the while **improving operational efficiency** and **service delivery** for the fire department and its payer, provider and transportation partners in terms of
 - lowering costs to the Fire Department
 - lowering health system costs
 - and improving utilization of health services
- Identified the value and benefits of increasing:
 - services which direct 911 NEMS responses to alternative care
 - services which stabilize 911 NEMS responses at home
- Identify the volume at which additional proactive cares can add financial benefit to Kent Fire Department.
- Identified the programs that would have little positive impact if implemented
- Applied **innovative prescriptive analytics** to integrated cross community care
- **Mapped patient flow** and data across a broad range of community services: 911 call dispatch center, fire department, transportation, providers and payers.

“With CGI’s Healthcare Enterprise Optimization solution and expertise, the Fire Department gained new insights of the value of our innovative community health management approach and enabled us to prescribe further improvements for better utilization of health services and lower costs of care.”

Mitch Snyder, Division Chief Puget Sound Regional Fire Authority EMS/FD CARES

\$1 million

Reduction in healthcare costs

34%

Reduction in unnecessary ED visits

783 hours

Increase in emergency unit availability

97%

Patient satisfaction



150 Fewer X-rays

100 Fewer CT Scans

20 Fewer MRI Scans

THANK YOU



Questions

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