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DUBAI CORPORATION FOR AMBULANCE SERVICES

إسعاف
Ambulance

Paramedics saves lives . . . . .
But how do we measure the rest of what we do?

Performance Indicators for Community Paramedics

Neil Kirby, ASM, MPH, B. Bus (HRD), BA, Ass Dip Applied Science (Ambulance)

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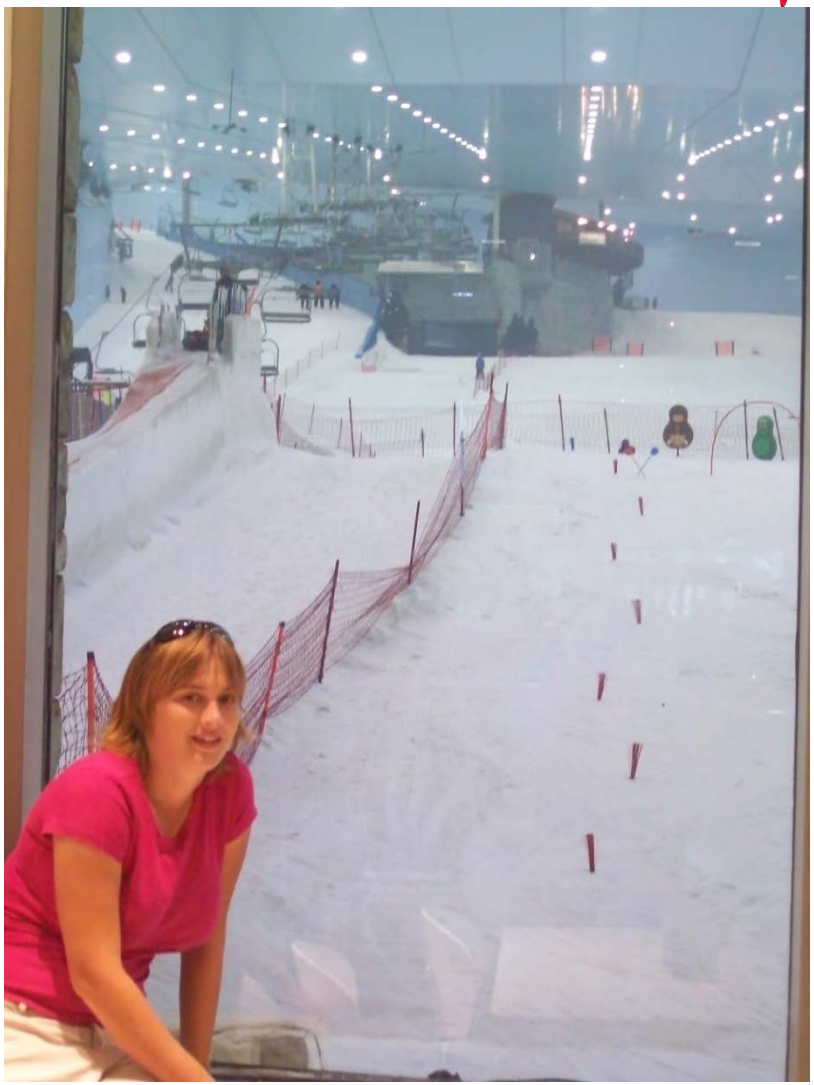

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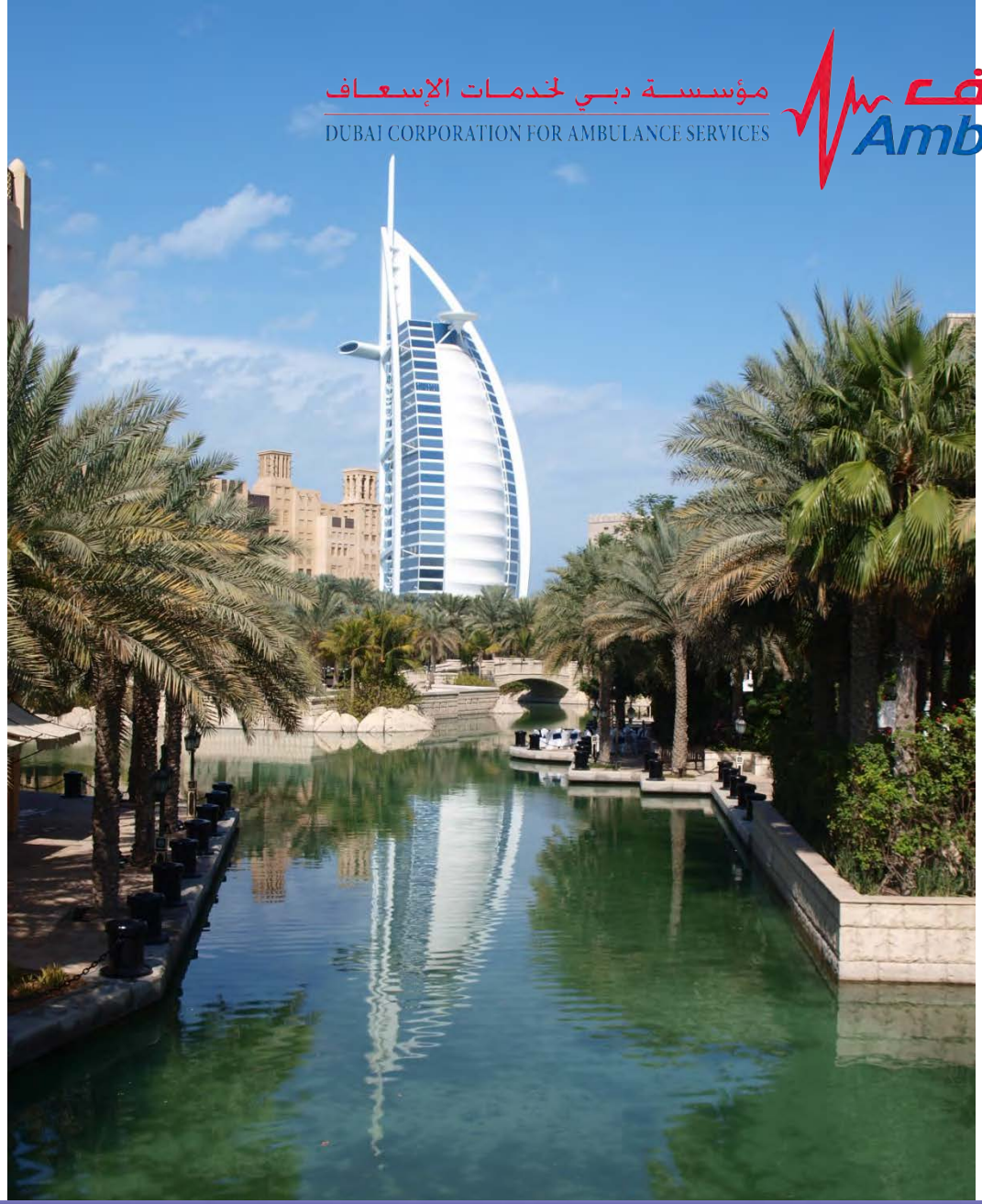

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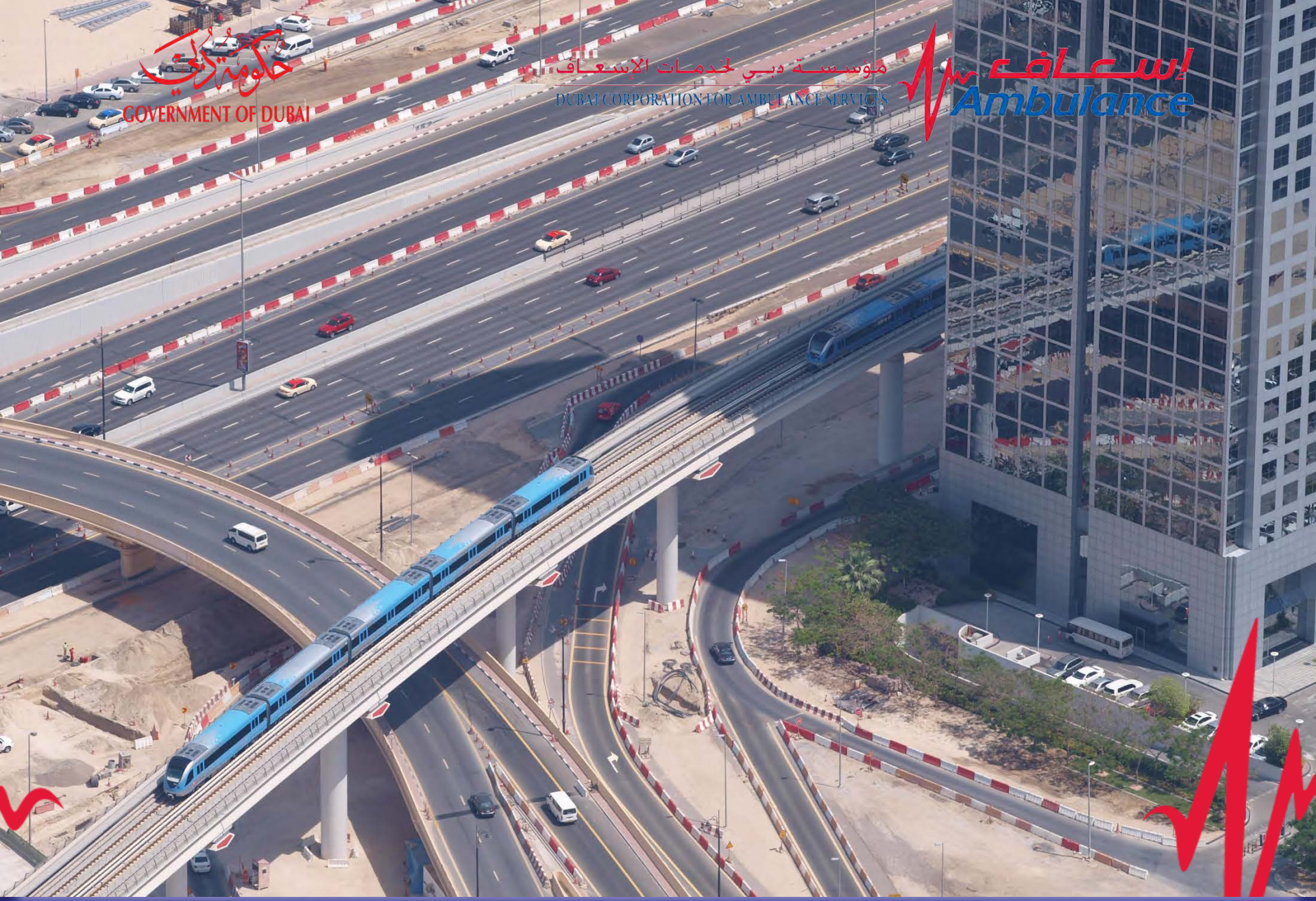

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GUINNESS WORLD RECORDS
CERTIFICATE
The largest display of hanging baskets consists of 2,968 arrangements, and was achieved by Akar Landscaping Services Agriculture (UAE) in the Zakher area in Al Ain, UAE, on 28 February 2011
GUINNESS WORLD RECORDS LTD

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Performance Indicators

Size Matters!

Reflected in our Performance Indicators

Focus is on numbers and response time

Performance Indicators

It's all about

8 minutes

&

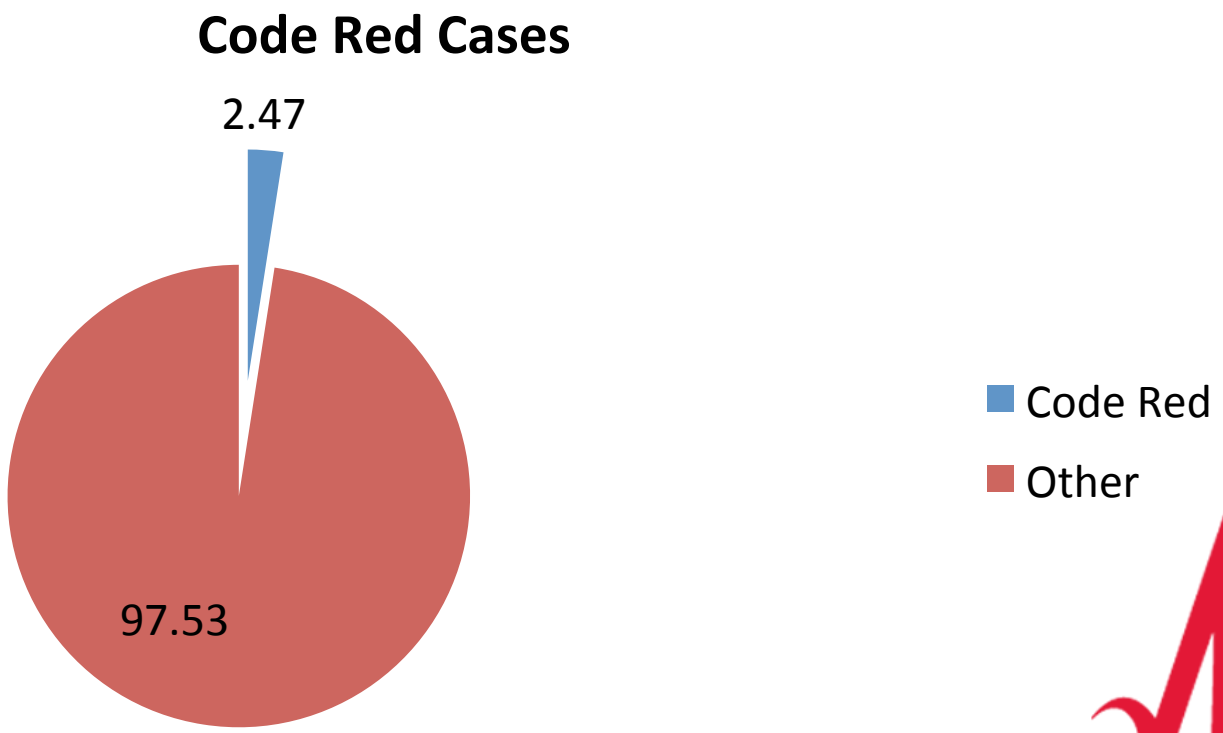
Saving Lives

Performance Indicators

Review of international Paramedic Services Strategic Plans Outcome Performance Indicators:

- Response Time
- Cardiac Arrest Survival
- Pain Management
- Acute myocardial infarction
- Stroke outcome

Performance Indicators



Performance Indicator Drivers

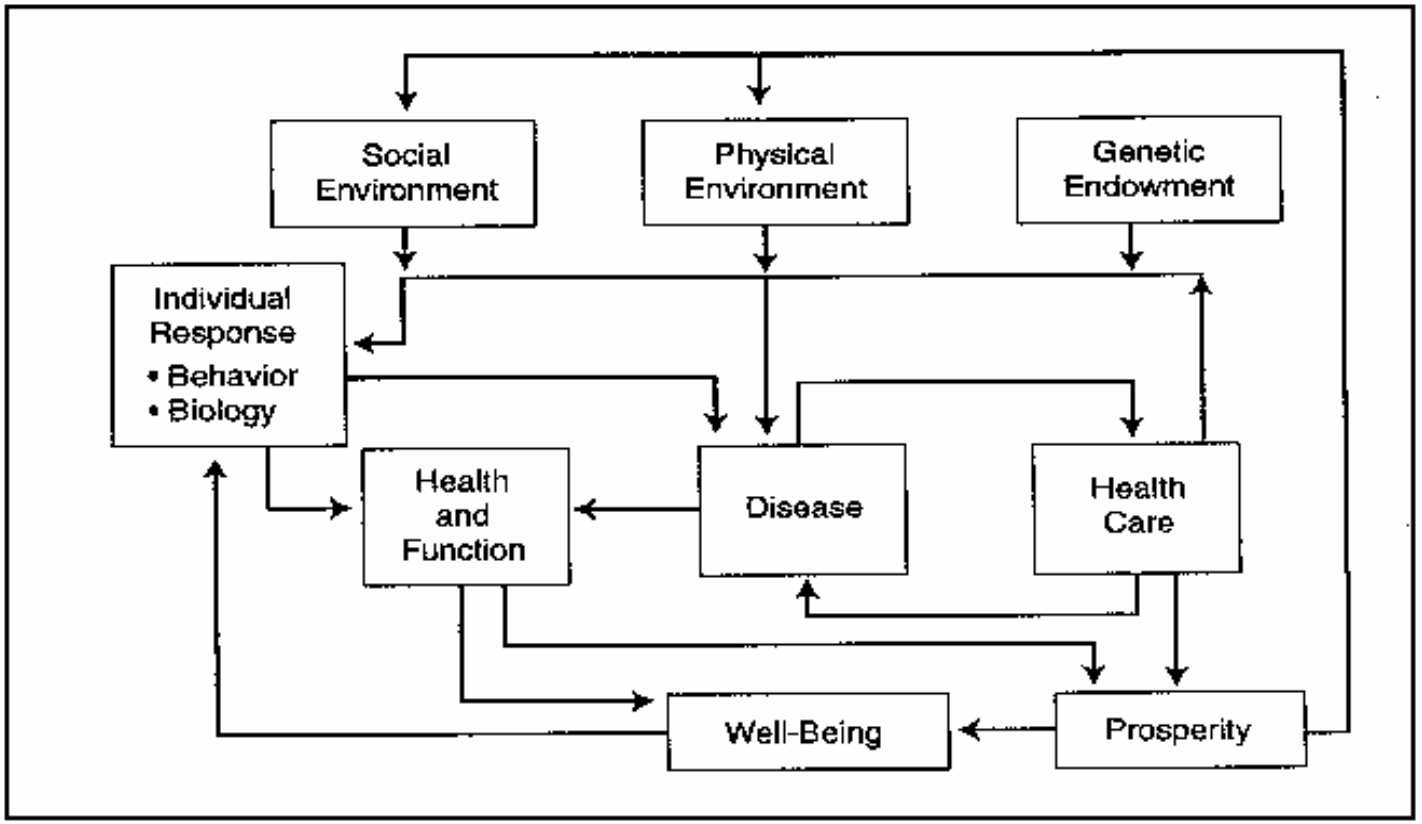
- Clinical
- Political
- Community
- Paramedic
- Patient

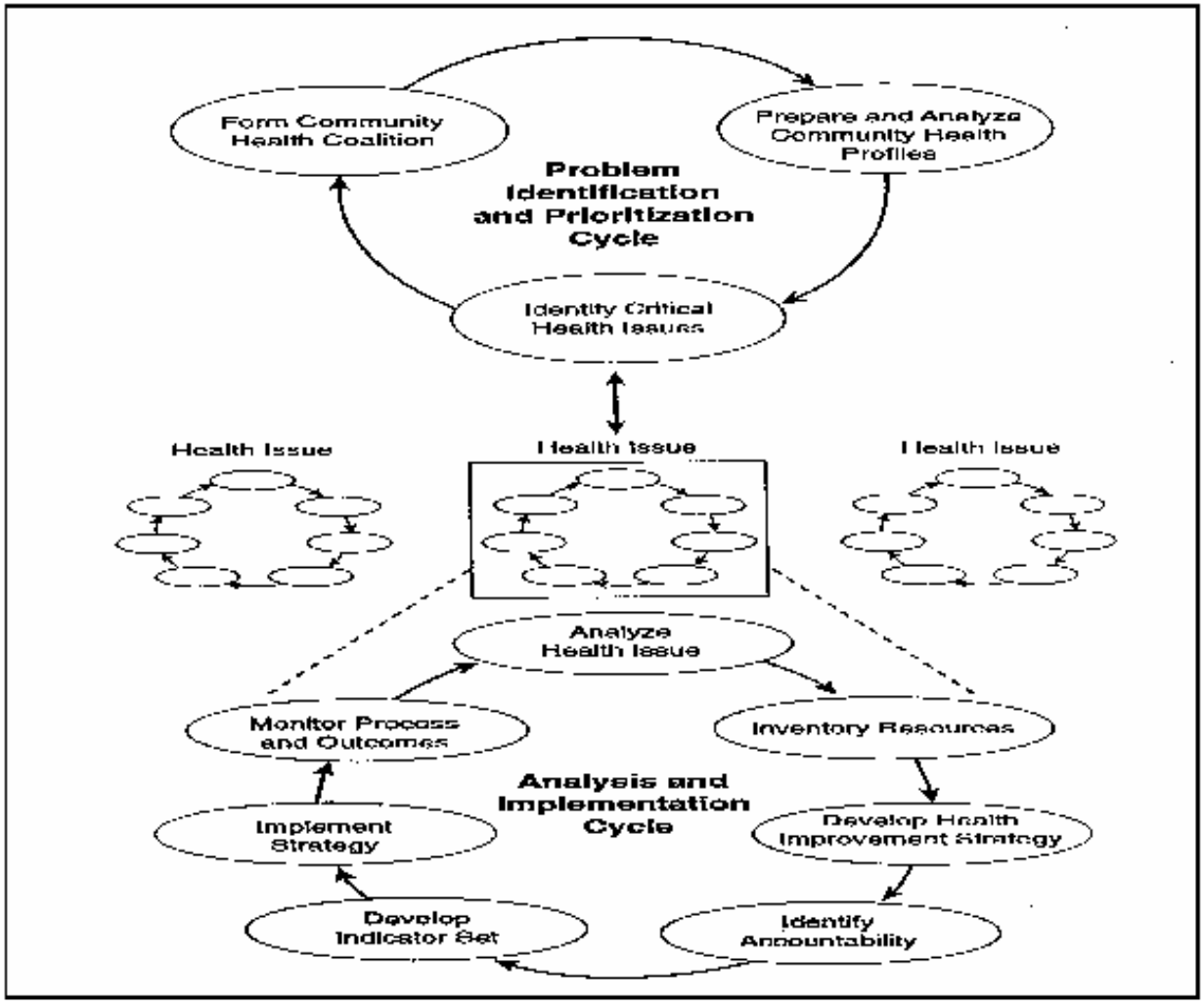
What is the relevance of this to Community Paramedic?

What Performance Indicators define Community Paramedicine?

And where are they in Strategic Plans?

Evans and Stoddart "Field Model"




Form Community Health Coalition
Prepare and Analyze Community Health Profiles
Problem Identification and Prioritization Cycle
Identify Critical Health Issues
Health Issue
Health Issue
Health Issue
Analyze Health Issue
Monitor Process and Outcomes
Inventory Resources
Analysis and Implementation Cycle
Implement Strategy
Develop Health Improvement Strategy
Develop Indicator Set
Identify Accountability

"There remains little high quality published evidence with which to validate many aspects of current paramedic practice. . . . Undoubtedly in the short term, paramedics must be taught to appropriately identify and manage a far wider range of commonly occurring conditions, minor illnesses, and trauma. However, in the long term, and more importantly, paramedics must learn to work together to take ownership of the basic philosophies of their practice, which must have their foundation in valid and reliable research."

L Ball Emergency Medicine Journal 2005; 22:896-900

THE CLAIMS . . . ..

Lucy Brown et al "The Unique advantages of advanced paramedic practitioners":

- Full benefits yet to be seen
- But they range from cost savings to reducing admissions
- Opportunity to instigate safer community based assessment
- Treatment and discharge in the home
- Referral to alternate pathways

Emerging outcomes and benefits

Lucy Brown et al "The Unique advantages of advanced paramedic practitioners":

- Reduction in A&E attendances
- More comprehensive out-of-hospital care
- Development of new evidenced based procedures, increase patient care and reduced costs
- Collaborative working with other providers
- Reduction in ambulance transport
- Saved bed days in acute settings
- Improved use of ambulances and crews through system management and clinical decision making
- Increased preceptorship, mentoring and performance development

National Association of State EMS Officials (USA) December 2010

- Community paramedicine increases patient access to primary and preventative care
- Provides wellness interventions within the medical home model
- Decreases emergency department utilisation
- Saves health care $$$
- Improves patient outcomes

EMS Agenda for the Future

EMS of the future would not only provide acute illness and injury care, but also identify health risks and provide follow-up care, treatment of chronic conditions and community health monitoring.

UK Paramedic Evolution

- Move away from the evaluation of unnecessary A & E attendances
- Move toward planning and provision of primary care services, responsive to consumer needs
- Raise public awareness of proper use of emergency services
- Develop and evaluate alternate “emergency” call handling services
- Review 999 call prioritization
- Alternate to routine transports

L Ball Emergency Medicine Journal 2005; 22:896-900

"The lack of contemporary evidence to link such targets with improvements in patient survival rates has now been acknowledged however and the search for more appropriate performance indicators continues"

L Ball Emergency Medicine Journal 2005; 22:896-900

(Written before the new UK Performance Indicators)

But where's the proof?

Little high quality evidence to quantify effect of call prioritization.

UK National Response Time Standards *"have led the service to focus more on the "manipulation and improvement" of performance data per se, rather than the initiation of improvements in patient handling and subsequent patient care"*

L Ball Emergency Medicine Journal 2005; 22:896-900

National Association of State EMS Officials (USA) December 2010

States will need to enhance current information systems to not only plan for, but also to justify the continued implementation and viability of community paramedic programs.

Community Paramedic programs dependent upon a communities health care needs and gaps

Need for Performance Indicators

"The need for increased coordination in patient care and higher quality care at lower cost has made it essential for EMS agencies to have in-place quality control or quality improvement programs that rely on key performance indicators to continuously monitor the system's overall performance and the effectiveness of different prehospital interventions."

Mazan J. El Sayeed, Emergency Medicine International, Lebanon, August 2011

Institute of Medicine 2006 recommended development of "*evidenced based performance indicators that can be nationally standardized so that statewide and national comparisons can be made*".

Six dimensions of quality care:

- *Safe*
- *Effective*
- *Patient centred*
- *Timely*
- *Efficient*
- *equitable*

Challenges

- Diverse communities (e.g. age demographics)
- Heterogeneity of EMS systems designs
- Diverse standards and practices
- Lack of uniformity in data collection
- Lack of agreement over validity of performance indicators or assessment measures
- Challenge of isolating the pre-hospital care effect from other factors, e.g. first responder intervention, emergency department, hospital care

Paramedic Performance Indicators

Performance Indicators are measurement tools that should be "specific, measurable, action orientated, relevant and timely".

3 types of indicators: structure, process and outcome indicators

"EMS system performance indicators follow the same classification"

Mazan J. El Sayeed, Emergency Medicine International, Lebanon, August 2011

Table 1: Structure-Process-Outcome Model for EMS systems PIs.

Indicator Type	Definitions	EMS systems PI examples	Advantages	Limitations
Structure	Characteristics of the different components of the system	(i) Facilities (ii) Equipment (iii) Staffing (iv) Knowledge base of providers (v) Credentials (vi) Deployment (vii) Response times	(i) Standardized structural data allows for comparison between systems structure	(i) Indirect measure of quality (ii) Difficult to relate to outcome (iii) Problematic with EMS system design diversity
Process	Combination or sequence of steps in patient care intended to improve patient outcome	(i) Medical protocols (ii) Medication administration (iii) Transport to appropriate facility	(i) Direct measure of quality (ii) Specific input for improvement (iii) Easy to understand and to evaluate (iv) Does not require Risk adjustment (v) Easy data collection (vi) Best for technical skill evaluation (vii) Short-term evaluation	(i) Strict criteria for generalization (ii) Can become very complex with more advanced care (i.e., complex processes)
Outcome	Changes in health and well-being related to antecedent care 6 *D's** (i) *Death* (ii) *Disease* (iii) *Disability* (iv) *Discomfort* (v) *Dissatisfaction* (vi) *Destitution*	(i) Out of hospital cardiac arrest survival (ii) Patient Satisfaction (iii) Improvement in pain score	(i) Easy to understand (ii) Feedback about all aspects of care provided (iii) Long-term outcomes	(i) Indirect measure of quality (ii) Requires Risk adjustment and standardization of data collection

*EMS outcomes defined by Emergency Medical Services Outcomes Project (EMSOP).

Are they meaningful?

Most common performance indicator: Respond to 90% of Priority 1 calls in <9 minutes.

- Lack of evidence based support for effect of short response time on trauma
- Need for even shorter time (4 minutes) on cardiac arrest

Do they address Community Paramedicine?

Performance Measurement for Community Health Improvement

Michael A. Stoto, PhD
Georgetown University and
Harvard School of Public Health

April 25, 2008

Maple Hill Farm, Hallowell ME

Measurement theory & methods

Steps for developing measures

1. Clarify the purpose of measurement
2. Identify the concepts to be measured
3. Identify specific indicators of these concepts
4. Assess validity, reliability, practicality, and utility

Concepts vs. indicators

CONCEPT	INDICATOR VS MEASURE
Mortality	Disease specific mortality rate
Presence of disease	Disease prevalence rate
Health Risks	Risk factor prevalence rate
Costs	Treatment Costs per Patient
Quality	Patient Satisfaction ratings
Access	Percent of population with health insurance

Performance measurement principles

Proceed from clearly defined goals and be seen as tools to promote progress toward these goals

- Structure, process, and outcome measures
- Performance measure characteristics agreed-on definitions:
  - valid, reliable, responsive to change
  - adaptable and consistent across different uses
  - evaluated periodically to ensure continued appropriateness and usefulness
- Feasibility and cost of data collection
- Developmental and evolving activity

Performance measurement in population health

- "Community health report card" advantages
  - encourage continuous improvement rather than set floors or ceilings
  - motivate performance through benchmarking and comparison with peers
  - enable aggregate performance measures across a group of organizations in the community
- Promote collaboration and information sharing rather than competition

Population health measurement issues

- Consideration of health field model
- Engage stakeholders
- Established validity and reliability
- Evidence-based link between performance and health
- Responsibility and accountability for performance
- Timely availability of data at a reasonable cost
- Inclusion in other indicator sets
- Robustness and responsiveness to change

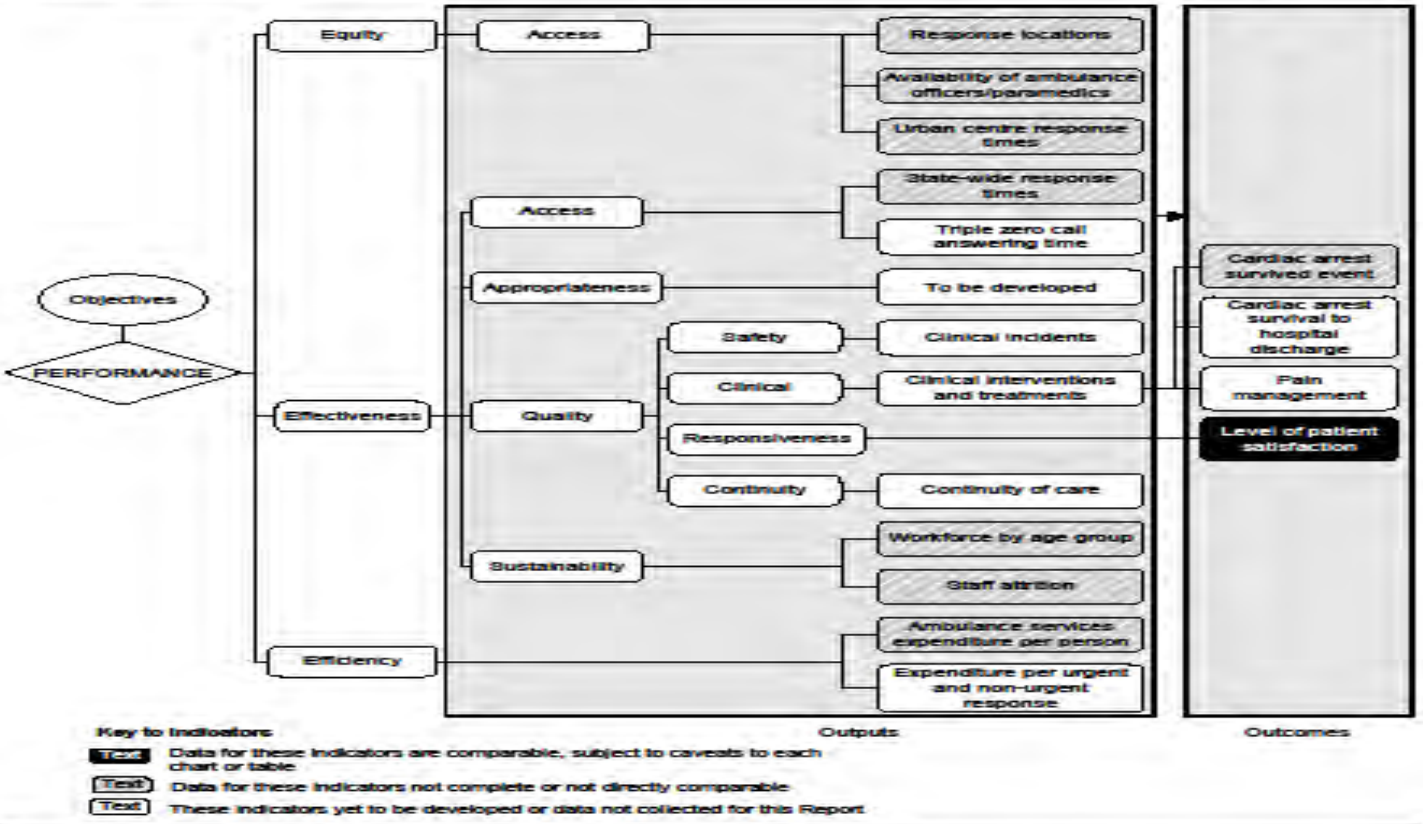
Potential Performance Framework for Paramedic Services (O'Meara 2005)

Dimensions	Structures	Processes	Outcomes
Effectiveness	Equipment Staff Skills	Response Times Resuscitations Interventions	Mortality Survival
Appropriateness	Staff Configuration Staff Level Evidence Base	Research Activities Time at Scene	New Knowledge Adverse Events
Safety	Monitoring Systems	Safety Procedures Quality of Care	Accreditation Complications
Capability	Appropriate Staff Equipment	Clinical Practice guidelines &standards Disaster preparedness	Impaired physiolog Alleviation of discomfort

Potential Performance Framework for Paramedic Services (O'Meara 2005)

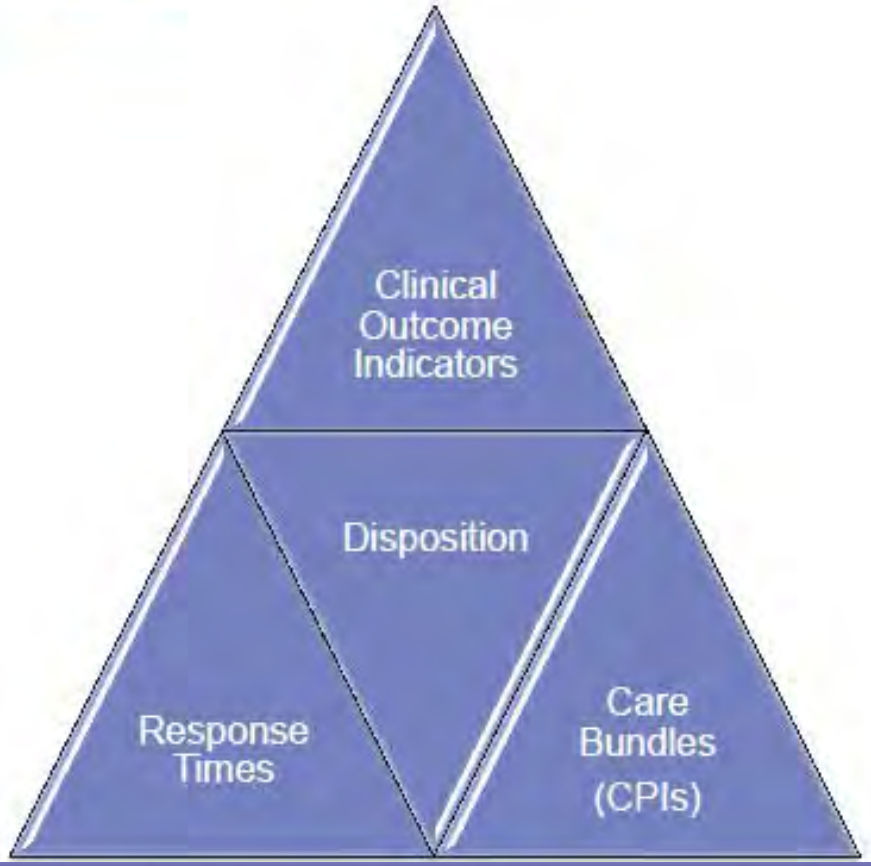
Dimensions	Structures	Processes	Outcomes
Continuity	Sustainability Teamwork	Coordination Collaboration	Limitation of disability Accurate information
Accessibility & Equity	Time to case Distance to cases	Resource allocation processes	Utilization rates Availability Demand for services
Acceptability	Public Participation Ethical standards	Respect for patient autonomy Accountability	Satisfaction Complaints
Efficiency	Staff to case ratios	Rostering systems	Affordability Cost-effectiveness

Figure 9.22 Ambulance events performance indicator framework



Caution should be exercised in making comparisons between the ambulance service organisations because of differences in geography, population dispersal and service delivery models. The Report's Statistical Appendix contains demographic and socioeconomic data that may assist in interpreting the performance indicators presented in this section.

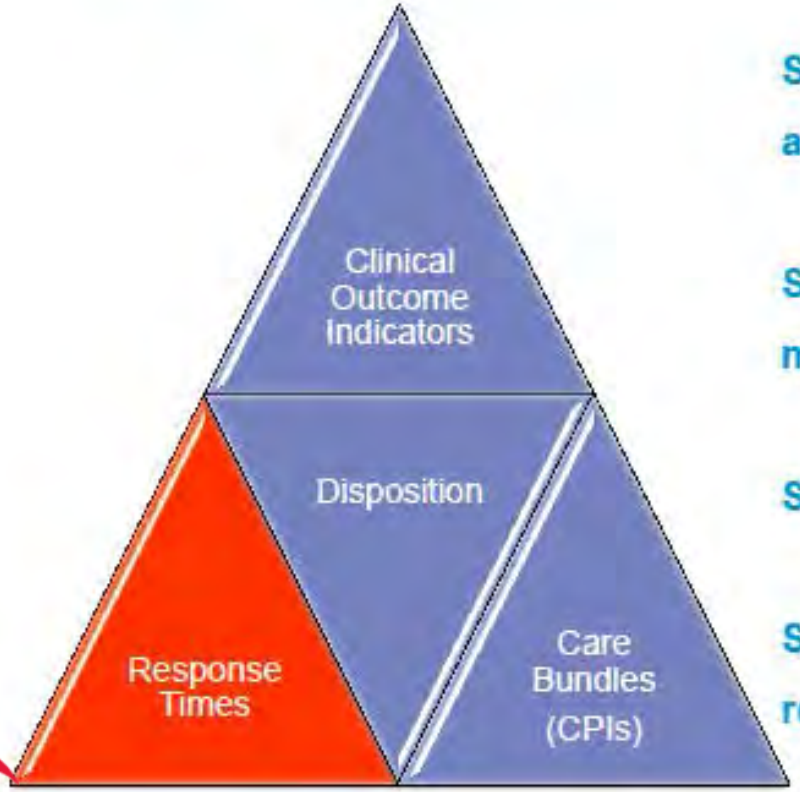
Quality Pyramid



NHS Ambulance Chief Executive Group

Ambulance Service Network
NHS CONFEDERATION

Quality Pyramid



Safety of 999 call handling (measured by call abandoned before call answered)

Safety of 999 call handling (measured by median time to answer call)

Safety by Category A 8 minute response

Safety by Category A 19 minute transport response

Safety - Time to treatment

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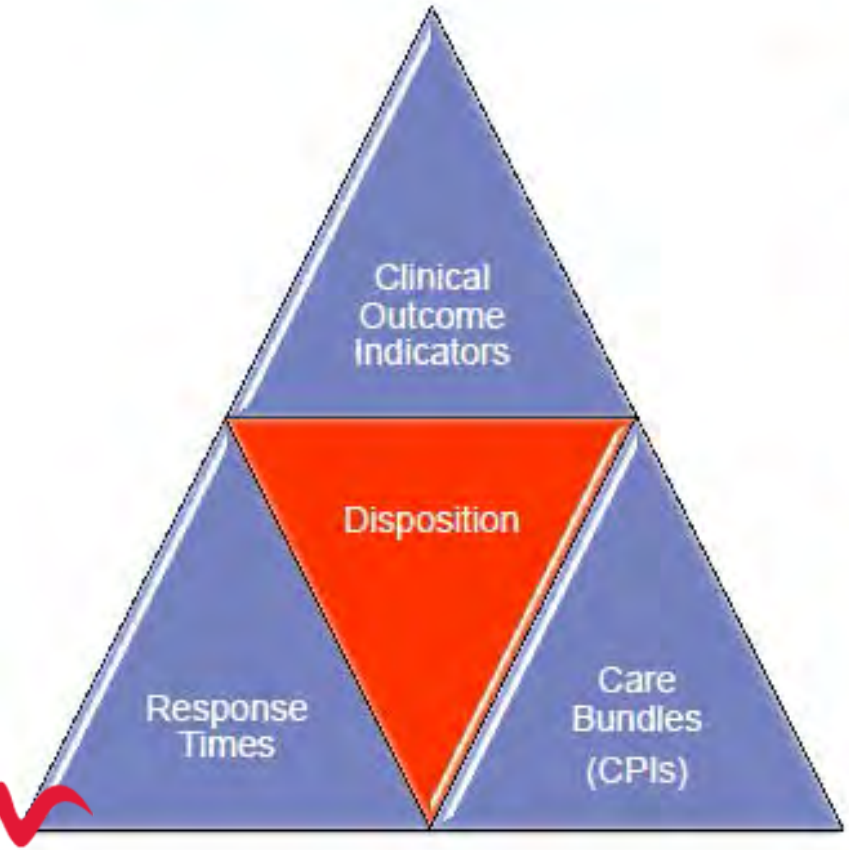
Quality Pyramid



Outcome - stroke (ambulance contribution by timely arrival of patients at acute stroke centres)

Outcome from acute myocardial infarction timely arrival at a specialist centre

Quality of care by proportion of calls closed with telephone advice or managed without transport to A&E (where clinically appropriate)

Quality of care by re-contact rate following discharge of care i.e. closure with telephone advice or following non-conveyance (within

NHS Ambulance Chief Executive Group

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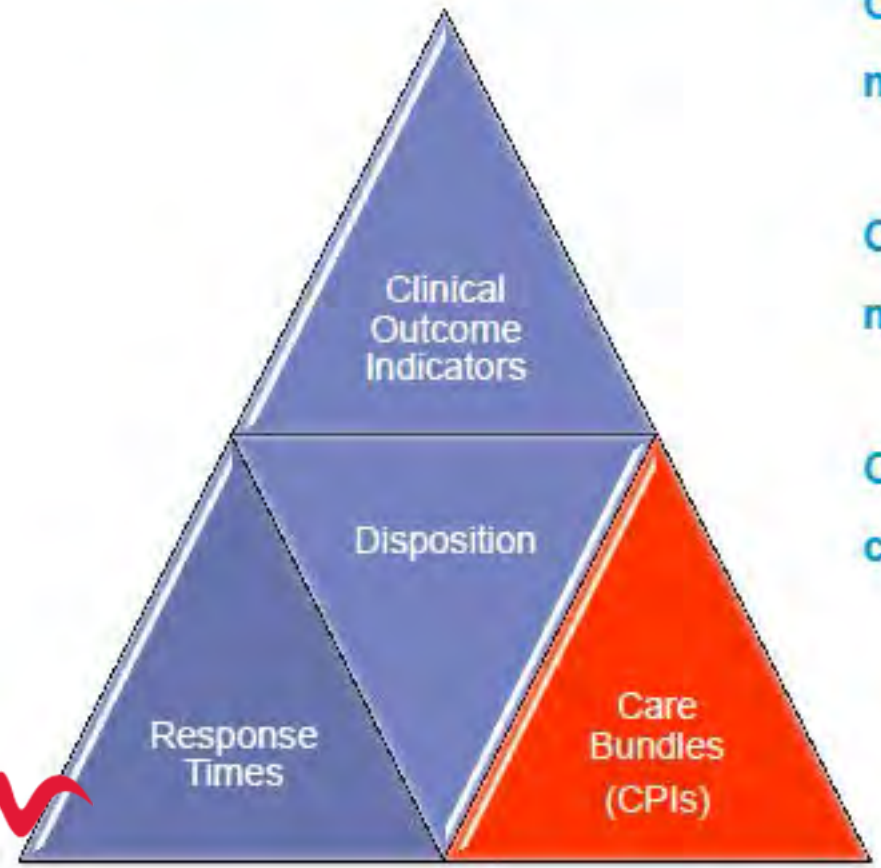
Quality Pyramid



Outcome from acute myocardial infarction measured by appropriate care bundle

Outcome from acute myocardial infarction measured early access to reperfusion

Outcome - stroke measured by appropriate care bundle

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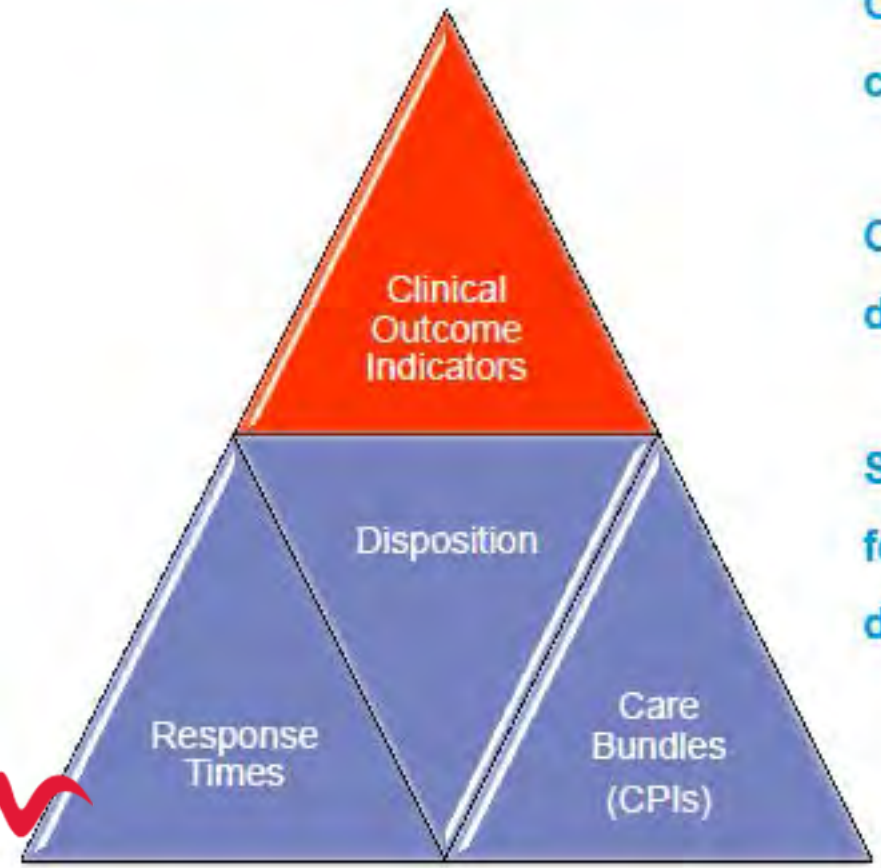
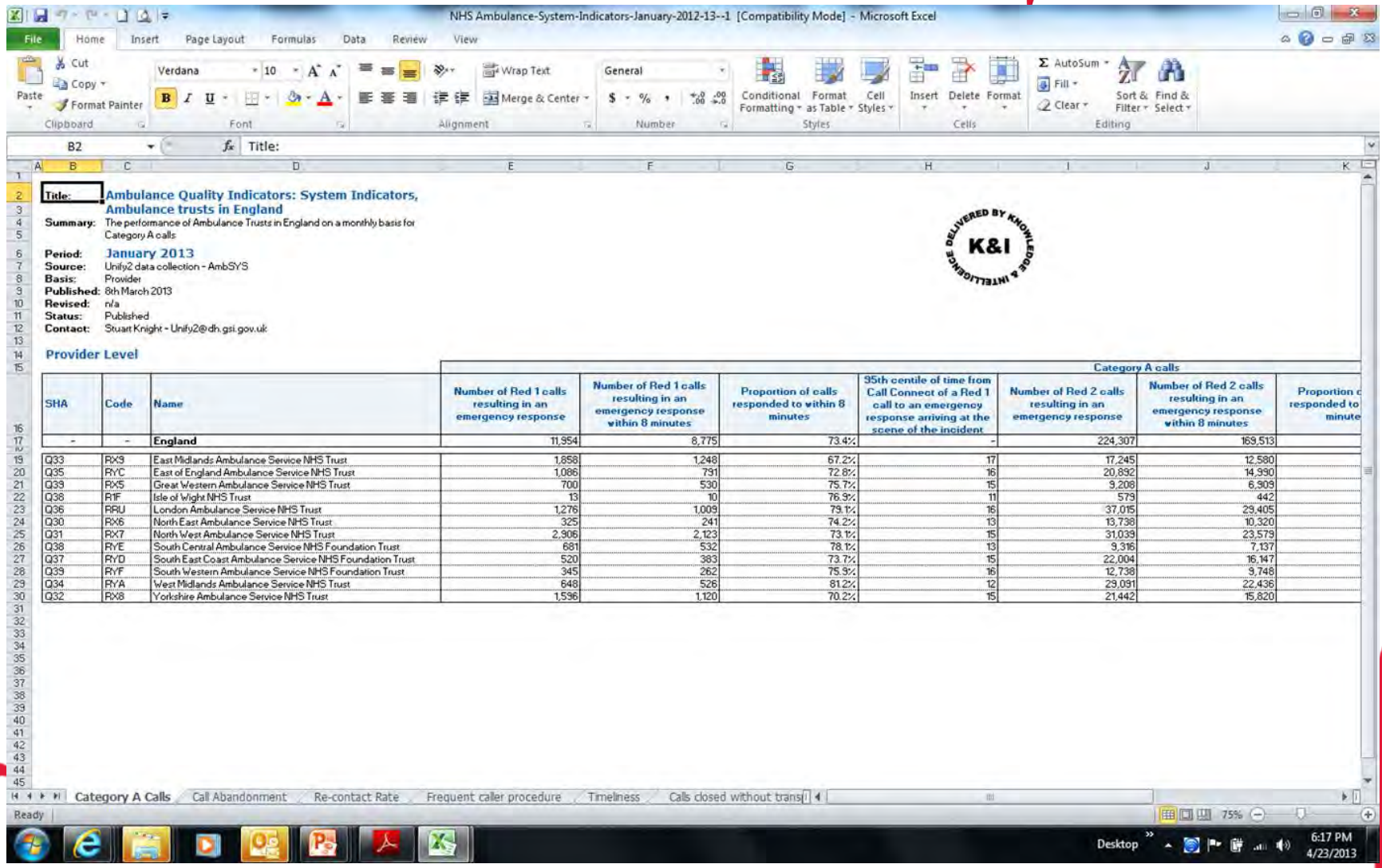
Quality Pyramid



Outcome from cardiac arrest return of circulation at hospital arrival (ROSC)

Outcome from cardiac arrest survival to discharge

Service Experience by narrative of patient feedback and impact on service design and delivery



NHS Ambulance-System-Indicators-January-2012-13--1 [Compatibility Mode] - Microsoft Excel

Title: Ambulance Quality Indicators: System Indicators, Ambulance trusts in England

Summary: The performance of Ambulance Trusts in England on a monthly basis for Category A calls

Period: January 2013
Source: Unify2 data collection - AmbSYS
Basis: Provider
Published: 8th March 2013
Revised: n/a
Status: Published
Contact: Stuart Knight - Unify2@dh.gsi.gov.uk

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Provider Level

			Category A calls						
SHA	Code	Name	Number of Red 1 calls resulting in an emergency response	Number of Red 1 calls resulting in an emergency response within 8 minutes	Proportion of calls responded to within 8 minutes	95th centile of time from Call Connect of a Red 1 call to an emergency response arriving at the scene of the incident	Number of Red 2 calls resulting in an emergency response	Number of Red 2 calls resulting in an emergency response within 8 minutes	Proportion c responded to minute
-	-	England	11,954	8,775	73.4%	-	224,307	169,513	
Q33	RX9	East Midlands Ambulance Service NHS Trust	1,858	1,248	67.2%	17	17,245	12,580	
Q35	RYC	East of England Ambulance Service NHS Trust	1,086	791	72.8%	16	20,892	14,990	
Q39	RX5	Great Western Ambulance Service NHS Trust	700	530	75.7%	15	9,208	6,909	
Q38	R1F	Isle of Wight NHS Trust	13	10	76.9%	11	579	442	
Q36	RRU	London Ambulance Service NHS Trust	1,276	1,009	79.1%	16	37,015	29,405	
Q30	RX6	North East Ambulance Service NHS Trust	325	241	74.2%	13	13,738	10,320	
Q31	RX7	North West Ambulance Service NHS Trust	2,306	2,123	73.1%	15	31,039	23,579	
Q38	RYE	South Central Ambulance Service NHS Foundation Trust	681	532	78.1%	13	9,316	7,137	
Q37	RYD	South East Coast Ambulance Service NHS Foundation Trust	520	383	73.7%	15	22,004	16,147	
Q39	RYF	South Western Ambulance Service NHS Foundation Trust	345	262	75.9%	16	12,738	9,748	
Q34	RYA	West Midlands Ambulance Service NHS Trust	648	526	81.2%	12	29,091	22,436	
Q32	RX8	Yorkshire Ambulance Service NHS Trust	1,596	1,120	70.2%	15	21,442	15,820	

Category A Calls | Call Abandonment | Re-contact Rate | Frequent caller procedure | Timeliness | Calls closed without trans

Ready 75%

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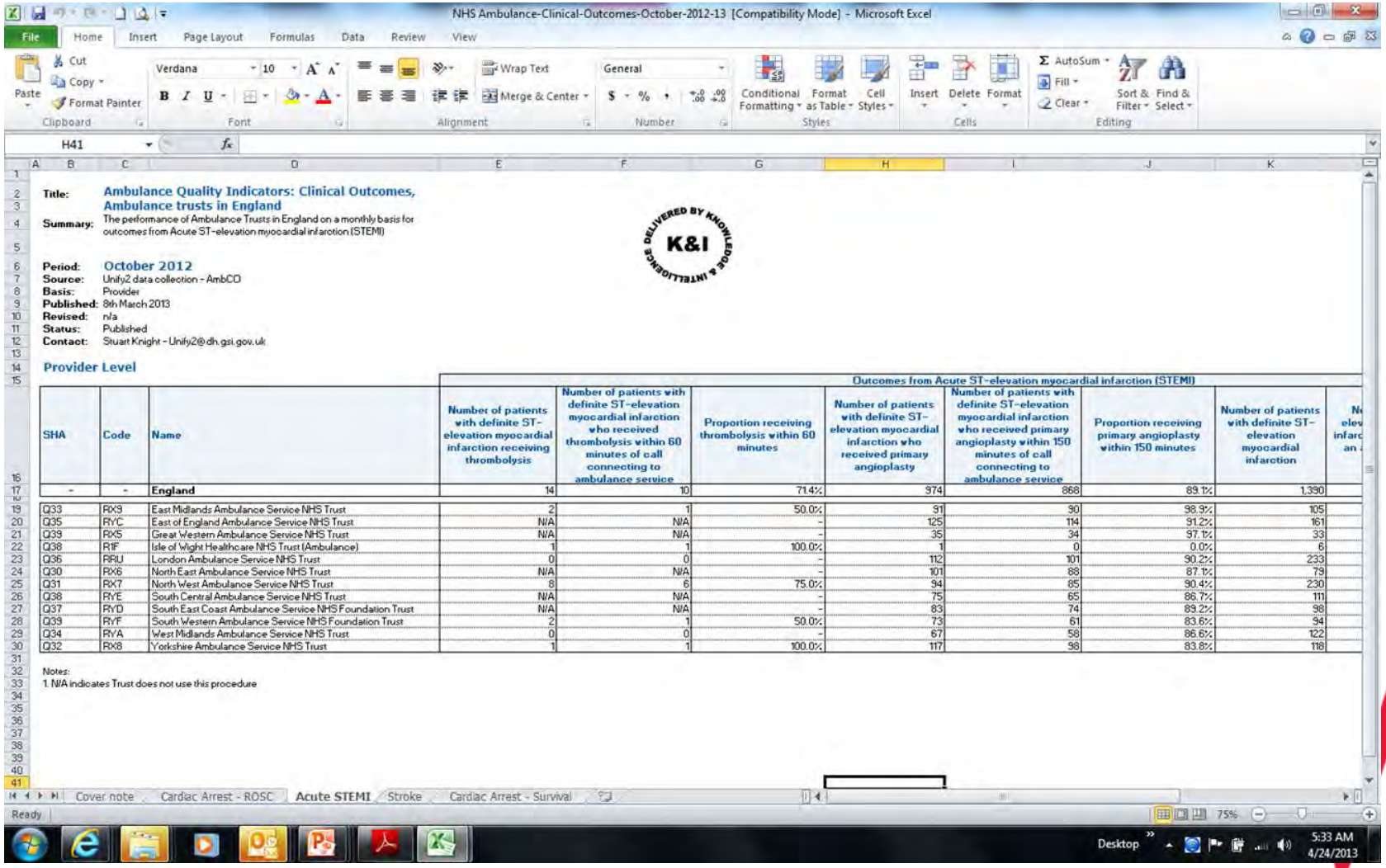

NHS Ambulance-Clinical-Outcomes-October-2012-13 [Compatibility Mode] - Microsoft Excel

Title: Ambulance Quality Indicators: Clinical Outcomes, Ambulance trusts in England

Summary: The performance of Ambulance Trusts in England on a monthly basis for outcomes from Acute ST-elevation myocardial infarction (STEMI)

Period: October 2012
Source: Unify2 data collection - AmbCO
Basis: Provider
Published: 8th March 2013
Revised: n/a
Status: Published
Contact: Stuart Knight - Unify2@dh.gsi.gov.uk

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Provider Level

			Outcomes from Acute ST-elevation myocardial infarction (STEMI)							
SHA	Code	Name	Number of patients with definite ST-elevation myocardial infarction receiving thrombolysis	Number of patients with definite ST-elevation myocardial infarction who received thrombolysis within 60 minutes of call connecting to ambulance service	Proportion receiving thrombolysis within 60 minutes	Number of patients with definite ST-elevation myocardial infarction who received primary angioplasty	Number of patients with definite ST-elevation myocardial infarction who received primary angioplasty within 150 minutes of call connecting to ambulance service	Proportion receiving primary angioplasty within 150 minutes	Number of patients with definite ST-elevation myocardial infarction	N… elev… infarc… an…
-	-	England	14	10	71.4%	374	868	89.1%	1,390	
Q33	RX9	East Midlands Ambulance Service NHS Trust	2	1	50.0%	91	90	98.9%	105	
Q35	RYC	East of England Ambulance Service NHS Trust	N/A	N/A	-	125	114	91.2%	161	
Q39	RX5	Great Western Ambulance Service NHS Trust	N/A	N/A	-	35	34	97.1%	33	
Q38	R1F	Isle of Wight Healthcare NHS Trust (Ambulance)	1	1	100.0%	1	0	0.0%	6	
Q36	RRU	London Ambulance Service NHS Trust	0	0	-	112	101	90.2%	233	
Q30	RX6	North East Ambulance Service NHS Trust	N/A	N/A	-	101	88	87.1%	79	
Q31	RX7	North West Ambulance Service NHS Trust	8	6	75.0%	94	85	90.4%	230	
Q38	RYE	South Central Ambulance Service NHS Trust	N/A	N/A	-	75	65	86.7%	111	
Q37	RYD	South East Coast Ambulance Service NHS Foundation Trust	N/A	N/A	-	83	74	89.2%	98	
Q39	RYF	South Western Ambulance Service NHS Foundation Trust	2	1	50.0%	73	61	83.6%	94	
Q34	RYA	West Midlands Ambulance Service NHS Trust	0	0	-	67	58	86.6%	122	
Q32	RX8	Yorkshire Ambulance Service NHS Trust	1	1	100.0%	117	98	83.8%	118	

Notes:
1. N/A indicates Trust does not use this procedure

Cover note | Cardiac Arrest - ROSC | Acute STEMI | Stroke | Cardiac Arrest - Survival

Ready

- NHS measures 27 Clinical Outcomes and 35 Performance Indicators

Question remains: What % of workload (the "What we do"), are measured by these indicators.

Do they address Community Paramedic initiatives?

Community Paramedicine

Evaluation Tool

March 2012

U.S. Department of Health and Human Services
Health Resources and Services Administration
Office of Rural Health Policy

Self-Assessment for Community Paramedicine Planning, Development, and Evaluation

Community Paramedicine programs might focus on specific medical needs such as diabetic monitoring or on broader health care issues such as mental health. Most importantly. Each of the successful programs now in place across the country have uniquely and specifically designed to meet one or more health care needs essential to that community. Additionally, successful programs capitalize on linkages, collaboration and integration with other health care resources in the community.

The Tool

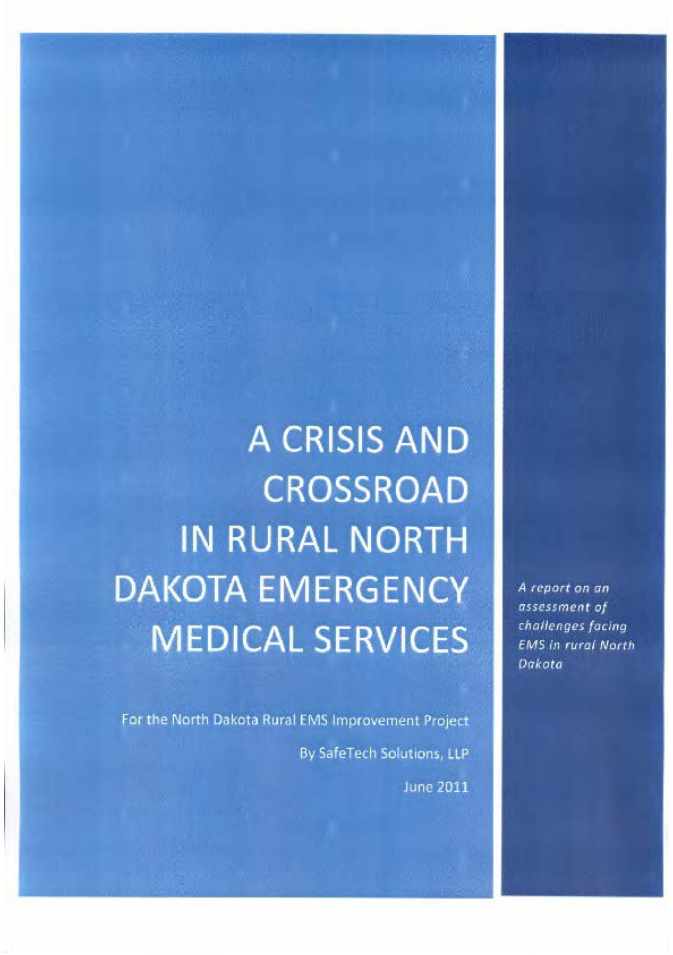
- Each community paramedicine program defines system specific health status benchmarks and performance indicators
- Variety of community health and public health interventions to improve community's health status.
- Reducing burden of illness, chronic disease and injury as a community wide public health problem not strictly as a patient care issue.

Benchmarks

1. There is a thorough description of the epidemiology of the medical conditions targeted by the community paramedicine program in the service area using both population based data and clinical databases.
2. A resources assessment for the community paramedicine program has been completed and is regularly updated.
3. The community paramedicine program assesses and monitors its value to its constituents in terms of cost benefit analysis and societal investment.
4. Comprehensive statutory authority and administrative rules support the community paramedicine program infrastructure, planning, provision, oversight, and future development.
5. Community paramedicine leaders use a process to establish, maintain, and constantly evaluate and improve a community paramedicine program in cooperation with medical, payer, professional, governmental, regulatory, and citizen organisations.

6. The community paramedicine program has a comprehensive written plan based on community needs. The plan integrates the community paramedicine program with all aspects of community health including, but not limited to: EMS, public health, primary care, hospitals, psychiatric medicine, social service and other key providers. The written community paramedicine program plan is developed in collaboration with community partners and stakeholders.
7. Sufficient resources, including those both financial and infrastructure related , support program planning, implementation, and maintenance.
8. Collected data are used to evaluate system performance and to develop public policy.
9. The Community paramedicine, EMS, public health, community health, and primary care systems are closely linked and working toward a common goal.
10. The electronic information system is used to facilitate ongoing assessment and assurance of the system performance and outcomes and provides a basis for continuously improving the community paramedicine.

11. The financial aspects of the community paramedicine program are integrated into the overall performance improvement system to ensure ongoing “fine-tuning” and cost-effectiveness.
12. The community paramedicine program ensures competent medical oversight.
13. The community paramedicine program is supported by an EMS system that includes communications, medical oversight, and transportation; the community paramedicine program, EMS system, and public health and community health agencies are well integrated.
14. The community paramedicine program ensures a competent and safe workforce.
15. The program acts to protect the public welfare by enforcing various laws, rules, and regulations as they pertain to the community paramedicine program.



Aaron Reinart, Nick Nudell & John Becknell

Recommendation

Ensuring the public and EMS patients are appropriately served demands simple measurements of system performance. These measurements should address issues of response reliability, the time it takes to respond to a call for help, clinical performance and clinical outcomes.

- Identify basic meaningful EMS system performance measures connected to what is meaningful for patients, providers, services, funders and receiving facilities.
- Modify existing data collection systems to support identified performance measures.
- Provide frequent and meaningful reports.
- Develop relationships with PSAPs to collect uniform and verifiable response reliability and response time data.
- Utilize regional consultants to continue to develop local quality practices.

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Underlying Principles

Indicators should:

Reflect the patient's perspective & journey, based on outcomes where possible and reflecting the clinical need of the user

Consider quality alongside timeliness & cost

Have an evidence base wherever possible

Be believable and promote best practice

Promote "pursuing excellence", not achieving targets

Incorporate the staff experience

Most data reported monthly and easy to interpret with explanations

So what were the claims?

- Cost savings
- Reduced admissions
- Safer community based assessment
- Treatment/discharge at home
- Alternate pathways
- Reduced A&E admissions
- More comprehensive care
- Reduced ambulance transports
- Saved bed days
- Improved Patient Outcomes

SO WHERE ARE THE PERFORMANCE INDICATORS?

Conclusions

- A way to go for all models to come together
- Cannot take community out of community paramedic
- Identify driver: clinical, patient, political, paramedic, community
- It is about structure, processes and outcomes

Conclusions

If you are going to do it:

- Define what you are doing.
- Define the outcome.
- Measure it.

The test:

DID IT MAKE A DIFFERENCE?

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QUESTIONS OR FEEDBACK?

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