Community APGAR Project: Comparing Results from the National Database

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Boise State University

Presented to:

Office of Rural Health Policy
State Offices of Rural Health
Region C Grantee Meeting

Date: August 27, 2012
Presentation Overview

- The Critical Access Hospital Community Apgar Questionnaire (CAH CAQ)
  - Background
  - Purpose
  - Development

- Results
- Next Steps
- Case Study One and Two
- Questions/Comments for Discussion
Acknowledgements

- Funding provided by
  - Initial funding for the development of the Community Apgar Program was provided by the Idaho Department of Health and Welfare, Office of Rural Health and Primary Care.

- Boise State University Center for Health Policy Research Staff
  - Lisa MacKenzie, Graduate Research Assistant
  - Elmira Bakhshinyan, Graduate Research Assistant
  - Elsa Howard, Graduate Research Assistant
  - Bradley Morris, Undergraduate Research Assistant
Background

- How did we get here – Why research?
  - Boise State University: Ed Baker, PhD
  - Family Medicine Residency of Idaho: Dave Schmitz, MD
  - Office of Rural Health and Primary Care: Mary Sheridan
  - An intersection of workforce, education and advocacy
  - Practical knowledge, relationships, experience and investment
  - Answering needs and necessary questions
  - Applied research: Development of tools
  - Partnerships with those with “skin in the game”
Devised in 1952 by Virginia Apgar, an anesthesiologist, as a simple and repeatable method to quickly and summarily assess the health of newborn children immediately after birth.

Determined by evaluating the newborn baby on five simple criteria (Appearance, Pulse, Grimace, Activity, Respiration) on a scale from zero to two, then summing up the five values thus obtained.
Mind Mapping
Apgar Scoring

How Ready is this Child?

Apgar score

- Appearance
  - Skin color/Complexion
    - blue all over 0
    - blue at extremities, body pink (acrocyanosis) 1
    - no cyanosis 2

- Pulse
  - <60, asystole 0
  - >60 but <100 1
  - >100 2

- Reflex irritability
  - no response to stimulation 0
  - grimace/feeble cry when stimulated 1
  - sneeze/cough/pulls away when stimulated 2

- Grimace
  - no response to stimulation 0
  - grimace/feeble cry when stimulated 1
  - sneeze/cough/pulls away when stimulated 2

- Activity
  - none 0
  - some flexion 1
  - active movement 2

- Muscle tone
  - none 0

- Respiration
  - absent 0
  - weak or irregular 1
  - strong 2

- Heart rate, Respiratory effort, Irritability, Tone, and Color

- How Ready
  - Is This Child

- Taken on 1st min and 5th min of life and later if necessary

Scores 3 and below are generally regarded as critically low, 4 to 6 fairly low, and 7 to 10 generally normal
What if there was a similar test for hospitals – quick and repeatable with intervention measures on standby – to assess readiness for recruiting physicians?

- Something new
- Something based on quantifiable data
- Something that incorporates the whole community
- Something that shows people on graphs and charts where they are and how to achieve their goals.
A History of Community Apgar

Year 1 (2007)
Idaho Family Physician Rural Work Force Assessment Pilot Study [Published in the Journal of Rural Health]

Year 2 (2008)
Critical Access Hospital Community Apgar Questionnaire (CAH CAQ) [Published in the Rural & Remote Health Journal]

Year 3 (2009)
- Examining the Trait of Grit and Satisfaction in Idaho Physicians [Accepted for publication in the Journal of the American Board of Family Medicine]
- Community Apgar Program (CAP) Pilot for Critical Access Hospitals in Idaho
- Nursing Community Apgar Questionnaire (NCAQ)

Year 4 (2010)
- Community Health Center Community Apgar Questionnaire (CHC CAQ) [Accepted for publication in the Rural and Remote Health Journal]
- Community Apgar Program (CAP) for Community Health Centers in Idaho
- Community Apgar Solutions Pilot Project

Years 5 & 6 (2011/2012)
- Expansion of the Community Apgar Program (CAP) for Critical Access Hospitals and Community Health Centers
  - Wyoming, North Dakota, Wisconsin and Alaska (CAHs)
  - Maine (CHCs)
Purpose

- The Critical Access Hospital Community Apgar Questionnaire (CAH CAQ) is a validated tool used in a rural community self-evaluation to assess assets and capabilities in recruiting and retaining physicians.
- Designed to be a real-time assessment tool providing guidance for the most helpful interventions at the present.
- Developed to differentially diagnose a CAHs relative component strengths and challenges
  - prioritize improvements
  - identify marketing opportunities
CAH CAQ Development

The CAH CAQ

- Questions aggregated into 5 Classes
  - Geographic
  - Economic
  - Scope of Practice
  - Medical Support
  - Hospital and Community Support

- Each Class contains 10 factors for a total of 50 factors/questions representing specific elements related to recruitment and retention of family medicine physicians in rural areas

- Three open-ended questions
CAH CAQ Development: Class/Factor Examples

Geographic
- Schools
- Climate
- Perception of Community
- Spousal Satisfaction

Economic
- Loan Repayment
- Competition
- Part-time Opportunities
- Signing Bonus

Scope of Practice
- Emergency Care
- Mental Health
- Obstetrics
- Administration Duties

Medical support
- Nursing Workforce
- Call/practice Coverage
- Perception of Quality
- Specialist Availability

Hospital and Community Support
- EMR
- Welcome & Recruitment
- Televideo Support
- Plan for Capital Investment
The Community Apgar Program (CAP)

- **Year 1 of Program**
  - Participants mailed the CAH CAQ survey with consent form [IRB approval from Boise State University]
  - CAH CAQ surveys administered in separate structured one hour interviews for each participant
  - CAH CAQ Board Reports
    - Individual data from each critical access hospital reviewed with Board of Directors each year of the program
    - Action plans developed in Year 1 for improvement in areas identified by the CAH CAQ
  - State level results presented at state selected forum
    - Aggregate state level data
    - Review of hospital specific analytics
    - Case study input by state research partner
The Community Apgar Program

- **Year 2 of Program**
  - Second round of CAH CAQ surveys
  - Year 2 Board presentation focuses on movement towards achieving improvement identified in Year 1

- **Making the most of the CAP:**
  - community self-evaluation
  - prioritizing improvement plans
  - advertising and interviewing
  - negotiation strategies and contract construction
The CAQ Value Proposition

- Beyond “Expert Opinion”
- A new approach to the old problem of physician recruiting
- Self-empowering for the community: knowledge as power, not an outside “headhunter”
- Beyond physician recruitment to community improvement
Future of the CAH CAQ

- With further research and collaboration, this tool could also be used to share successful strategies communities have used to overcome challenges which may be difficult or impossible to modify.

- CAH CAQ surveys may be useful in identifying trends and overarching themes which can be further addressed at state or national levels.
States Participating/Interested

- States Participating in the CAP
- States Interested in Implementing the CAP
Results
### Top 10 Advantages - CAH

<table>
<thead>
<tr>
<th>Location</th>
<th>Year</th>
<th>Advantages</th>
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</table>
| Idaho       | 2012  | - Recreational opportunities  
             - Internet access  
             - Community need/physician support  
             - Loan repayment  
             - Community volunteer opportunities  
             - Income guarantee  
             - Perception of quality  
             - Competition  
             - Ancillary staff workforce  
             - Employment status |
| Wyoming     | 2011  | - Employment status  
             - Community need/physician support  
             - Loan repayment  
             - Recreational opportunities  
             - Income guarantee  
             - Ancillary staff workforce  
             - Revenue flow  
             - Transfer arrangements  
             - Start-up/marketing costs  
             - Moving allowance |
| North Dakota| 2011  | - Internet access  
             - Perception of quality  
             - Transfer arrangements  
             - Income guarantee  
             - Loan repayment  
             - Community need/physician support  
             - Ancillary staff workforce  
             - Hospital leadership  
             - Schools  
             - Start-up/marketing costs (tie for 10th)  
             - Recreational opportunities (tie for 10th)  
             - Part-time opportunities (tie for 10th)  
             - Moving allowance (tie for 10th) |
| Wisconsin   | 2012  | - Recreational opportunities  
             - Employment status  
             - Income guarantee  
             - Nursing workforce  
             - Religious/cultural opportunities  
             - Community volunteer opportunities  
             - Ancillary staff workforce  
             - Perception of quality  
             - Transfer arrangements  
             - Mid-level provider workforce  
             - Community need/physician support (tie for 10th) |
| Alaska      | 2012  | - Moving allowance  
             - Income guarantee  
             - Emergency medical services  
             - Recreational opportunities  
             - Inpatient care  
             - Community volunteer opportunities  
             - Community need/physician support  
             - Payor mix  
             - Perception of quality  
             - Perception of community |
### Top 10 Challenges - CAH

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<th>State</th>
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<th>Challenges</th>
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<tr>
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<td>2012</td>
<td>• Shopping/other services&lt;br&gt;• Spousal satisfaction&lt;br&gt;• Mental health&lt;br&gt;• Schools&lt;br&gt;• Access to larger community&lt;br&gt;• Allied mental health workforce&lt;br&gt;• C-section&lt;br&gt;• Electronic medical records&lt;br&gt;• Obstetrics&lt;br&gt;• Religious/cultural opportunities</td>
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<td>• Spousal satisfaction&lt;br&gt;• Shopping/other services&lt;br&gt;• Access to larger community&lt;br&gt;• Mental health&lt;br&gt;• Social networking&lt;br&gt;• Allied mental health workforce&lt;br&gt;• Climate&lt;br&gt;• Religious/cultural opportunities&lt;br&gt;• Electronic medical records&lt;br&gt;• Nursing home</td>
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- Internet access  
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- Income guarantee  
- Perception of quality  
- Competition  
- Stability of physician workforce  
- Employment status  
- Call/ practice coverage |
| Wyoming   | 2011 | - Employment status  
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- Community need/physician support  
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- Community volunteer opportunities (tie for 10th)  
- Revenue flow (tie for 10th) |
| Alaska    | 2012 | - Moving allowance  
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- Income guarantee  
- Emergency medical services  
- Inpatient care  
- Community need/physician support  
- Perception of quality  
- Community volunteer opportunities  
- Physical plant and equipment  
- Welcome and recruitment (tie for 10th)  
- Perception of community (tie for 10th) |
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<td>Wyoming</td>
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<td>Spousal satisfaction, Shopping/other services, Access to larger community, Mental health, Social networking, Allied mental health workforce, Religious/cultural opportunities, Climate, Electronic medical records, Nursing home</td>
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<td>North Dakota</td>
<td>2011</td>
<td>Climate, Spousal satisfaction, Shopping/other services, Mental health, Access to larger community, Emergency room coverage, Demographic/patient mix, Social networking, Allied mental health workforce, Electronic medical records</td>
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<td>Wisconsin</td>
<td>2012</td>
<td>Spousal satisfaction, Televideo support, Inpatient care, Shopping/other services, Mental health, Social networking, Climate, Electronic medical records, Perception of community, Mid-level supervision</td>
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<tr>
<td>Alaska</td>
<td>2012</td>
<td>Spousal satisfaction, Shopping/other services, Climate, Access to larger community, Part-time opportunities, C-section, Endoscopy, surgery, Employment status, Electronic medical records, Social networking</td>
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Cumulative CAH Community Apgar Score by Hospital – Across Five States
Cumulative CAH Community Apgar Score by Hospital - Across Five States
## Top 10 Advantages - CHC

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<td>• Retirement package</td>
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<td>• Perception of quality</td>
<td>• Inpatient care</td>
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<td>• Mid-level provider workforce</td>
<td>• Obstetrics: deliveries, C-section</td>
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<td>• Perceived fiscal stability</td>
<td>• Obstetrics: prenatal care</td>
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<td>• CME benefit</td>
<td>• Mid-level provider workforce</td>
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<td>• Minor trauma (casting/suturing)</td>
<td>• CHC leadership</td>
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<td>• Community need/physician support</td>
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<td>• Schools (tie for 10th)</td>
<td>• Call/practice coverage (tie for 10th)</td>
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<td>• Teaching (tie for 10th)</td>
<td>• Physical plant and equipment (tie for 10th)</td>
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<td>• Ancillary staff workforce (tie for 10th)</td>
<td>• Office GYN procedures (tie for 10th)</td>
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### Top 10 Challenges - CHC

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<td>• Televideo support</td>
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<td>• Mental health</td>
<td>• Social networking</td>
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<td>• Access to larger community</td>
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<td>• Production incentive</td>
<td>• Salary (amount)</td>
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<td>• Specialist availability</td>
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<td>• Nursing workforce</td>
<td>• Mental health</td>
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<td>• Demographic: underserved/payor mix (tie for 7th)</td>
<td>• Televideo support</td>
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<td>• Obstetrics: parental care (tie for 7th)</td>
<td>• Production incentive</td>
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<td>• Specialist availability (tie for 7th)</td>
<td>• Physician workforce stability</td>
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</table>
### Top 10 Importance - CHC

#### Idaho (2010)
- Call/practice coverage
- Salary (amount)
- Spousal satisfaction
- Obstetrics: deliveries/C-section
- Recreational opportunities
- Obstetrics: prenatal care
- Loan repayment
- Competition
- Allied mental health workforce
- Schools (tie for 10th)
- Perception of quality (tie for 10th)
- Physician workforce stability (tie for 10th)

#### Maine (2012)
- Call/practice coverage
- Administration
- Loan repayment
- Spousal satisfaction
- Perception of quality
- Schools
- Competition
- Nursing workforce (tie for 8th)
- Salary (amount) (tie for 8th)
- Electronic medical records (tie for 8th)
- Physician workforce stability (tie for 8th)
Top 10 Apgar Factors - CHC

Idaho (2010)

• Recreational opportunities
• Loan repayment
• Perception of quality
• Schools
• Retirement package
• CME benefits
• Community need/physician support
• Mid-level provider workforce
• Minor trauma (casting/suturing) (tie for 9th)
• Call/practice coverage (tie for 9th)

Maine (2012)

• Loan repayment
• Recreational opportunities
• Community need/physician support
• Inpatient care
• Mid-level provider workforce
• Obstetrics: prenatal care
• Perception of quality
• Obstetrics: deliveries/C-section
• Call/practice coverage
• CHC leadership
## Bottom 10 Apgar Factors - CHC

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<td>• Specialist availability(tied for 9th)</td>
<td></td>
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<tr>
<td>• Welcome/recruitment program (tied for 9th)</td>
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Cumulative CHC Community Apgar Score by Facility – Across Two States
Cumulative CHC Community Apgar Score by Facility – Across Two States
Case Study One
Hospital X
Comparative Cumulative Apgar Score for Scope of Practice Class

Cumulative Apgar Score
Scope of Practice Factors

- Obstetrics
- C-section
- Emergency room coverage
- Endoscopy, surgery
- Nursing home
- Inpatient care
- Mental health
- Mid-level supervision
- Teaching
- Administration
Comparative Cumulative Apgar Score for Medical Support Class

Hospital X

- Perception of quality
- Physician workforce stability
- Specialist availability
- Transfer arrangements
- Nursing workforce
- Allied mental health workforce
- Mid-level provider workforce
- Ancillary staff workforce
- Emergency medical services
- Call, practice coverage

Cumulative Apgar Score

Medical Support Factors
Comparative Cumulative Apgar Score for Community and Hospital Support Class

Hospital X

Cumulative Apgar Score for Community and Hospital Support Class

- Physical plant and equipment
- Plans for capital investment
- Electronic medical records
- Hospital leadership
- Internet access
- Televideo support
- Hospital sponsored CME
- Community need, physician support
- Community volunteer opportunities
- Welcome and recruitment

Hospital and Community Support Factors
Hospital X
Top 10 Cumulative Apgar Variance Factors across All 50 Factors

Social networking
Nursing workforce
Signing bonus
Hospital sponsored CME
Hospital leadership
Moving allowance
Competition
Revenue flow
Plans for capital investment
Transfer arrangements
Hospital X
Bottom 10 Cumulative Apgar Variance Factors across All 50 Factors

Bottom 10 Apgar Variance Factors

- Inpatient care
- Call, practice coverage
- Perception of quality
- Climate
- Mid-level supervision
- Emergency medical services
- Shopping and other services
- Payor mix
- Physical plant and equipment
- Allied mental health workforce
Case Study Two
Comparative Cumulative Apgar Score

CHC X

Overall Apgar
Geographic
Economic
Scope of Practice
Medical Support
Facility and Community Support

Cumulative Apgar Score
CHC X
Comparative Cumulative Apgar Score for Geographic Class

Access to larger community
Demographics: underserved, payor mix
Housing
Schools
Social networking
Recreational opportunities
Spousal satisfaction
Shopping, other services
Climate
Perception of community
Comparative Cumulative Apgar Score for Economic Class

Economic Factors

Part-time opportunities
Loan repayment
Salary (amount)
Signing bonus, moving allowance
Length of contract flexibility
Perceived fiscal stability
Production incentive
Retirement package
CME benefit
Competition
Comparative Cumulative Apgar Score for Scope of Practice

CHC X

Obstetrics:
- parental care
- deliveries, C-section

Inpatient care
- Emergency, stabilization care

Minor trauma

Office GYN procedures

Mental health

Mid-level supervision

Teaching

Administration
Comparative Cumulative Apgar Score for Medical Support

Cumulative Apgar Score

Medical Support Factors

Perception of quality
Physician workforce stability
Specialist availability
Nursing workforce
Mid-level provider workforce
Ancillary staff workforce
Pharmacy services
Allied mental health workforce
Language services support
Call, practice coverage

Baseline Mean

CHC X
Comparative Cumulative Apgar Score for Facility and Community Support

Facility and Community Support Factors

- Physical plant and equipment
- Plans for capital investment
- Electronic medical records
- CHC leadership
- Televideo support
- Community need, physician support
- Welcome, recruitment program
- Medical reference resources
- Delegated physician patient services
- Moonlighting opportunities

Cumulative Apgar Score

Baseline Mean
CHC X
Top 10 Cumulative Apgar Variance Factors across All 50 Factors

- Specialist availability
- Spousal satisfaction
- Allied mental health workforce
- Shopping, other services
- Access to larger community
- Demographics: underserved, payor mix
- Delegated physician patient services
- Schools
- Televideo support
- Medical reference resources
Bottom 10 Cumulative Apgar Variance Factors across All 50 Factors

- Housing
- Physician workforce stability
- Pharmacy services
- Production incentive
- Physical plant and equipment
- Teaching
- Welcome, recruitment program
- Language services support
- Community need, physician support
- Recreational opportunities

Cumulative Apgar Score
Next Steps

☐ Continue to expand the Critical Access Hospital and Community Health Center Community Apgar Programs

☐ Expand and refine the “CAP Solutions” initiative

☐ Complete the beta-testing of the Nursing Critical Access Hospital Community Apgar Program

☐ Consider development CAP to other workforce bottleneck areas (e.g., PAs)

☐ Mine the national comparative database
Questions/Comments for Discussion