Idaho Family Physician Rural Workforce Study: 
The Community Apgar Questionnaire

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Presentation Overview

- Background
- Study Design
- Selected Findings
- Next Steps
- Questions
Background

- Contributors/Co-Investigators/Staff
  - Steven Millard, President, Idaho Hospital Association
  - Ted Epperly, MD, Program Director and CEO, Family Medicine Residency of Idaho
  - Alex Reed, Psy.D., MPH, Director of Behavioral Science, Mental Health and Research, Family Medicine Residency of Idaho
  - Ayaka Nukui, BS, Center for Health Policy, Boise State University
Background

- **Funding**
  - Mary Sheridan, Supervisor, State Office of Rural Health and Primary Care, Idaho Department of Health and Welfare through a federal grant from the US Department of Health and Human Services, Health Resources and Services Administration
  - Research and Physician Faculty time contributions made by Boise State University and Family Medicine Residency of Idaho
  - In-kind contributions by Idaho Hospital Association
Background

- American Academy of Family Physicians report in September of 2006
  - Idaho will experience a serious shortage of family medicine physicians by 2020
  - One of five states identified in report to experience “serious shortages”
    - Nevada, Arizona, Florida and Texas
    - Population growth
    - Increase in elderly citizens
Background

- Medical Education Study in 2007 commissioned by Idaho State Board of Education
  - Access to physicians extremely limited in Idaho
  - Idaho ranks high in number of physicians age 55 and older
  - Recommended that Idaho increase its physician work force to reach the median level of the 50 states
    - This would require a 42 percent increase in the number of Idaho physicians at current population levels
    - Population growth, demographic changes and retirement trends will impact this number higher
Background

- Rural areas of Idaho experience significant challenges recruiting and retaining Family Medicine physicians.
- Rural areas disproportionately underserved - one study indicated that 20% of population resides in rural areas served by only 9% of practicing physicians.
- These challenges can materially impact rural community access to health care – both general and specific care such as obstetrics.
- Information on recruitment and retention of rural Family Medicine physicians in Idaho of significant interest to rural hospitals, rural practicing physicians, educational institutions, federal and state government, legislators and the rural community at large.
Boise State University and the Family Medicine Residency of Idaho have initiated a three year study of factors impacting recruitment and retention of family medicine physicians in rural Idaho funded by the Idaho Office of Rural Health and Primary Care.

- **Partners**
  - Idaho Hospital Association
  - Idaho Academy of Family Physicians
  - Idaho Medical Association
Background

- Year One Findings
  - Idaho rural family medicine physicians have a broad scope of practice
  - Idaho rural family medicine physicians use technology to help provide care to rural residents and to maintain skills
  - Idaho rural family medicine physicians are satisfied with their practice in rural areas
  - Idaho rural hospital administrators are satisfied with their family medicine staffs
Study Design

- Year Two Research Objectives
  - Develop an objective measurement tool (Community Apgar Questionnaire or CAQ) to assess the characteristics and parameters of rural Idaho communities related to successful recruitment and retention of family medicine physicians
  - Administer the CAQ to rural medical leaders in a structured interview format
  - Analyze the results, produce a written summary of the findings and disseminate the results to interested local, state, regional and national parties
Study Design

- CAQ Development
  - Literature review conducted during Year One research
  - Site visits to local communities during Year One research
  - Discussions with rural physicians and hospital administrators during Year Two research
Study Design

- The Community Apgar Questionnaire (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
Study Design

- Cumulative Community Apgar Score
  - Designed to produce an overall assessment comparable to an neonatal Apgar score
  - Constructed from the sum of five classes of the CAQ (similar to the five dimensions of the neonatal Apgar) to create a repeatable measure of a community’s assets and capabilities
  - Intended to prognosticate the success of a community in recruiting and retaining rural family medicine physicians
  - Designed to differentially diagnose a community’s relative strengths and challenges in order to prioritize improvements and identify marketing opportunities by examining Class and Factor Apgar scores
Study Design

- CAQ Target Communities
  - Selected based on site visits and discussions with the IHA and the State Office of Rural Health and Primary Care
  - Twelve rural communities with critical access hospitals identified
  - Communities classified as alpha \([N=6]\) or beta \([N=6]\) based on historical success in recruiting and retaining family medicine physicians
  - Final sample included 6 alpha and 5 beta communities \([91.7\%\] participation rate\) as one community declined initial participation but requested to participate in subsequent community assessments
Study Design

- **CAQ Respondents**
  - Eleven rural critical access hospital administrators and eleven rural physicians with leadership roles in recruitment and retention [Total N=22]

- **CAQ Administration**
  - Participants mailed the CAQ survey in advance with consent form [IRB approval from Boise State University] and one hour interviews scheduled
  - Separate structured one hour interviews by Dr. David Schmitz for each participant where consent form was reviewed and executed and CAQ completed
Selected Findings

- CAQ Areas of Emphasis
  - Community Advantages and Challenges
  - Community Importance Ratings
  - Community Apgar Scores

- CAQ Analytical Framework
  - Respondent type (administrator vs physician)
  - Community type (alpha vs beta)
  - Across Factor, Class and Summary

- Differential Diagnosis of Community’s Assets and Capabilities
Top 10 Advantage Factors across All 50 Factors

Mean Score

0 0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8

recreational opportunities
community need/support of physician
internet access
hospital leadership
community volunteer opportunities
income guarantee
transfer arrangements
plans for capital investment
teaching
inpatient care

Top 10 Advantage Factors
Mean Score

Top 10 Challenge Factors across All 50 Factors

Overall

Top 10 Challenge Factors

- perception of community
- allied mental health workforce
- social networking
- part-time opportunities
- EMR
- schools
- mental health
- shopping and other services
- C-section
- spousal satisfaction
Top 10 Important Factors across All 50 Factors

Top 10 Important Factors

- Spousal satisfaction
- Call/practice coverage
- Income guarantee
- Recreational opportunities
- Revenue flow
- Stability of physician workforce
- Physical plant and equipment
- Perception of quality
- Community need/support of physician
- Loan repayment

Mean Score

Overall
Summary Class Community Importance Mean Score
Overall by Respondent and Community Type

Mean Score

Overall Administrator Physician A Community B Community

p=0.03
Top 10 Apgar Scores by Factors across All 50 Factors

- Access to recreational opportunities
- Community need/support of physician
- Internet access
- Income guarantee
- Hospital leadership
- Plans for capital investment
- Transfer arrangements
- Community volunteer opportunities
- Perception of quality
- Loan repayment

Mean Apgar Score

Overall
Bottom 10 Apgar Scores by Factors across All 50 Factors

- allied mental health workforce
- perception of community
- social networking
- part-time opportunities
- electronic medical records
- mental health
- schools
- shopping and other services
- C-section
- spousal satisfaction

Overall Mean Apgar Score
Summary Class Community Apgar Mean Score by Overall Respondent and Community Type

p = 0.00
Comparative Apgar Score for Economic Class for Community Six

- Employment status
- Part-time opportunities
- Loan repayment
- Income guarantee
- Signing bonus
- Moving allowance
- Startup/marketing costs
- Revenue flow
- Payor mix
- Competition

Economic Factor

Apgar Score
Comparative Apgar Score for Medical Support Class for Community Six

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

Apgar Score

Medical Support Factor

Mean
Community 6
Top 10 Apgar Variance Factors Across All 50 Factors in Community Six

- Schools
- Obstetrics
- Competition
- Revenue flow
- Endoscopy/surgery
- Plans for capital investment
- Signing bonus
- Social networking
- Part-time opportunities
- Income guarantee
Bottom 10 Apgar Variance Factors Across All 50 Factors in Community Six

Bottom 10 Apgar Variance Factors

- administration
- nursing workforce
- start-up/marketing costs
- community volunteer opportunities
- demographics/patient mix
- perception of quality
- C-section
- electronic medical records
- welcome and recruitment program
- physical plant and equipment
Comparative Apgar Score for Community Two

Cumulative Apgar Score

Overall APGAR
Geographic
Economic
Scope of Practice
Medical Support
Hospital and Community Support

Mean
Community 2

Community Apgar Class
Comparative Apgar Score for Economic Class for Community Two

- Employment status
- Part-time opportunities
- Loan repayment
- Income guarantee
- Signing bonus
- Moving allowance
- Startup/marketing costs
- Revenue flow
- Payor mix
- Competition

Economic Factor

Apgar Score

Mean

Community 2
Comparative Apgar Score for Community and Hospital Support Class for Community Two

- physical plant and equipment
- plans for capital investment
- electronic medical records
- hospital leadership
- internet access
- televideo support
- hospital sponsored CME
- community need/support of physician
- community volunteer opportunities
- welcome and recruitment program

Community and Hospital Support Factor

Mean
Community 2
Top 10 Apgar Variance Factors Across All 50 Factors in Community Two

- Religious/cultural opportunities
- Transfer arrangements
- Emergency medical services
- Physical plant and equipment
- Emergency room coverage
- Televideo support
- Nursing workforce
- Endoscopy/surgery
- Ancillary staff workforce
- Hospital sponsored CME

Variance of Apgar Score from the Mean
Variance of Apgar Score from the Mean

Bottom 10 Apgar Variance Factors Across All 50 Factors in Community Two

Bottom 10 Apgar Variance Factors

- mid-level provider workforce
- specialist availability
- internet access
- start-up/marketing costs
- moving allowance
- payor mix
- schools
- employment status
- signing bonus
- income guarantee
Comparative Apgar Score for Economic Class for Community Five

Economic Factor

- employment status
- part-time opportunities
- loan repayment
- income guarantee
- signing bonus
- moving allowance
- startup/marketing costs
- revenue flow
- payor mix
- competition

Apgar Score
Top 10 Apgar Variance Factors Across All 50 Factors in Community Five
Top 10 Apgar Variance Factors Across All 50 Factors in Community Five

**Bottom 10 Apgar Variance Factors**

- Payor mix & perception of community
- Perception of quality
- Electronic medical records
- Administration
- Demographics/patient mix
- Medical plant and equipment
- Social networking
- Specialist availability
- Call/practice coverage
- Stability of physician workforce
Next Steps

- Identify a process for using the CAQ to help communities
- Phase III research
  - Survey of IMA physicians to assess underlying characteristics of perseverance, tenacity and fortitude
  - Impact on selection of medical students and residents
Questions