

# UND and 3RNET: Sharing a History of Collaboration for Rural Health Workforce

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# Presentation Overview



- The Critical Access Hospital Community Apgar (CAH CAQ) and Community Health Center Community Apgar (CHC CAQ) projects
  - Background
  - Purpose
  - Development
- National Results across States
- Case Study One and Two
- Next Steps
  - Research, Education and Policy Initiatives
  - Apgar Solutions
- Questions



# 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.
  - Other funding
    - Wyoming Health Resources Network
    - Center for Rural Health, University of North Dakota School of Medicine and Health Sciences
    - Wisconsin Office of Rural Health, University of Wisconsin-Madison School of Medicine and Public Health
    - Maine Primary Care Association
    - Alaska's Area Health Education Center (AHEC), Alaska Center for Rural Health, University of Alaska-Anchorage



# 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”



# Apgar Score for Newborns

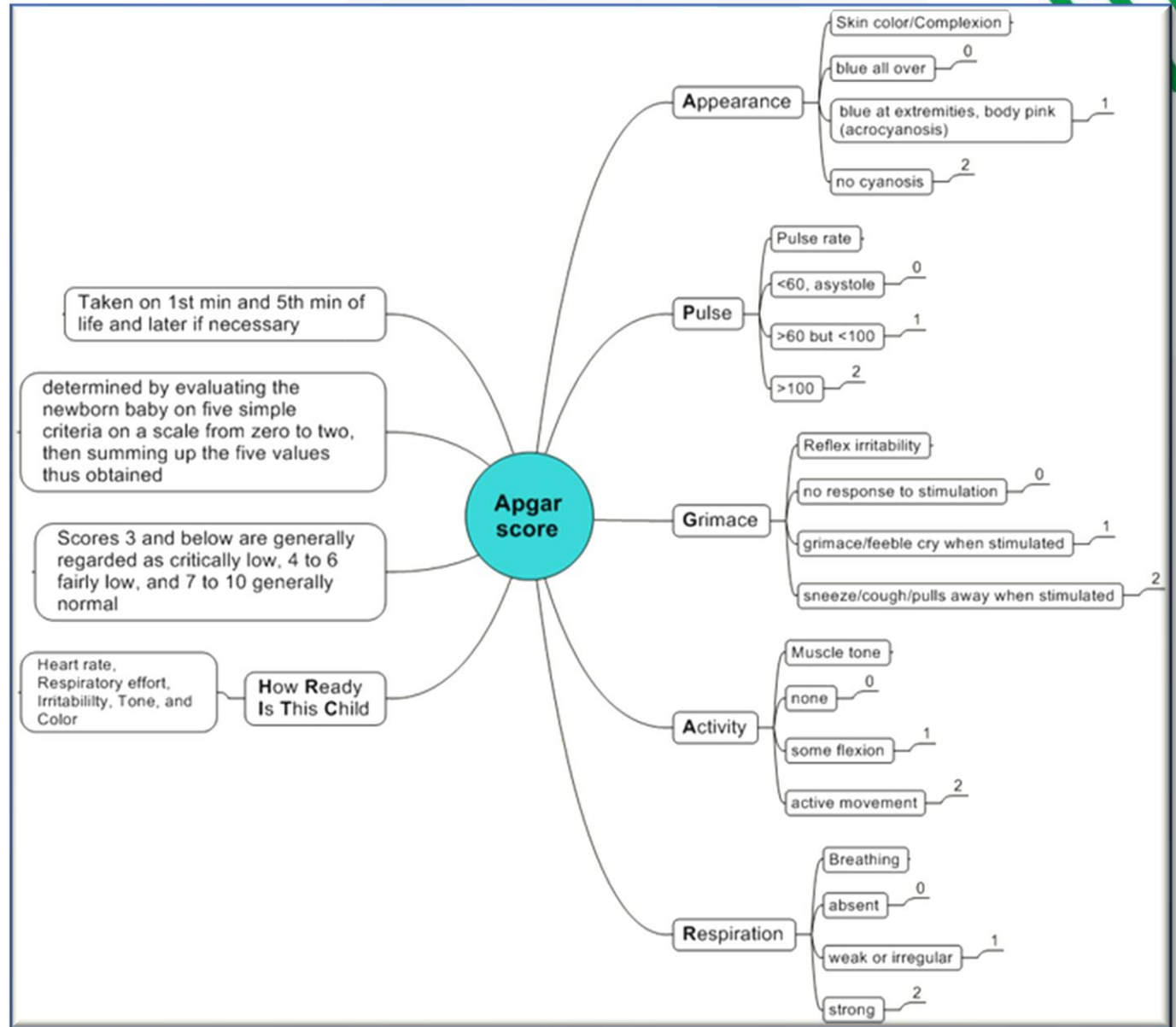


- Devised in 1952 by Virginia Apgar, an anesthesiologist, as a simple and repeatable method to quickly and summarily assess the health of newborn children immediately after birth
- Determined by evaluating the newborn baby on five simple criteria (**A**pppearance, **P**ulse, **G**rimace, **A**ctivity, **R**espiration) on a scale from zero to two, then summing up the five values thus obtained





# Mind Mapping Apgar Scoring



How Ready is this Child?



# A New Response to the Same Old Problem...

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 [Published 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) [Published in *Rural & Remote Health Journal*]

## Year 4 (2010)

- Community Health Center Community Apgar Questionnaire (CHC CAQ) [Published in the *Rural & Remote Health Journal*]
- CAP for Community Health Centers in Idaho
- Community Apgar Solutions Pilot Project

## Years 5-13 (2011-2019)

- Expansion of the CAP for Critical Access Hospitals and Community Health Centers
  - Wyoming, North Dakota, Wisconsin, Alaska, Indiana, Utah, Montana, and Iowa (CAH)
  - Maine (CHCs)
- Rural Community Variation in Physician Recruitment Readiness [Published in *Journal of Health Science*]
- Nursing CAP in Idaho
- Assessing Idaho Rural Family Physician Scope of Practice over Time [Published in the *Journal of Rural Health*]
- Expansion of the CAP to Nursing in Australia.

## Years 14-16 (2020-2023)

- HPERC CAP (MT, ND)
- Rural Pharmacist CAP (AUS)
- CAH CEO CAP (ND)
- CHC (PA) and RHC (CO)  
(future studies: PA & NP CAPs)



# 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



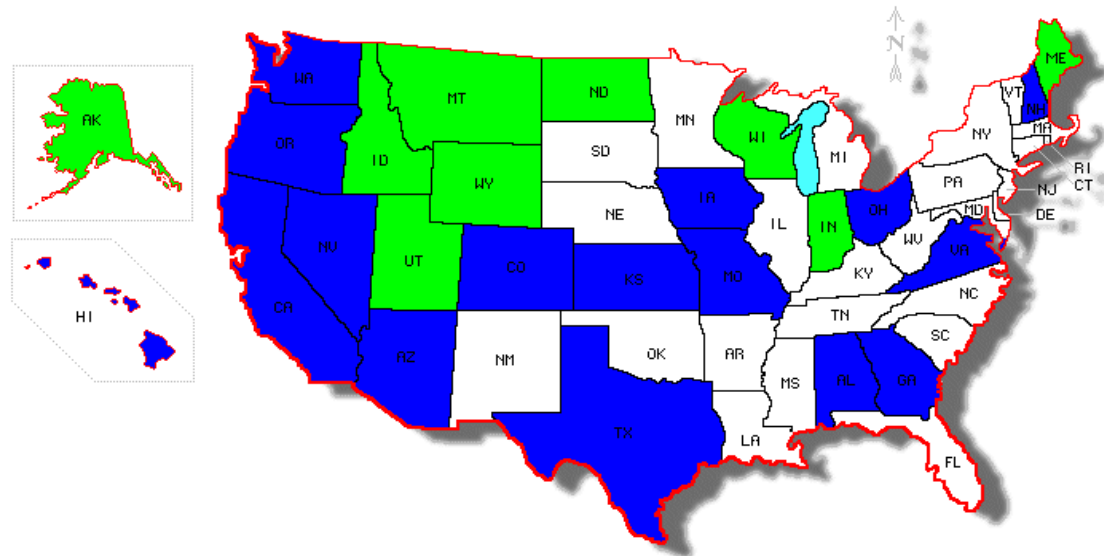
# Future of the CAH CAQ



- 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

Source: diymaps.net (c)



# Results





# 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 9<sup>th</sup>)
- Call/practice coverage (tie for 9<sup>th</sup>)

## 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

## Idaho (2010)

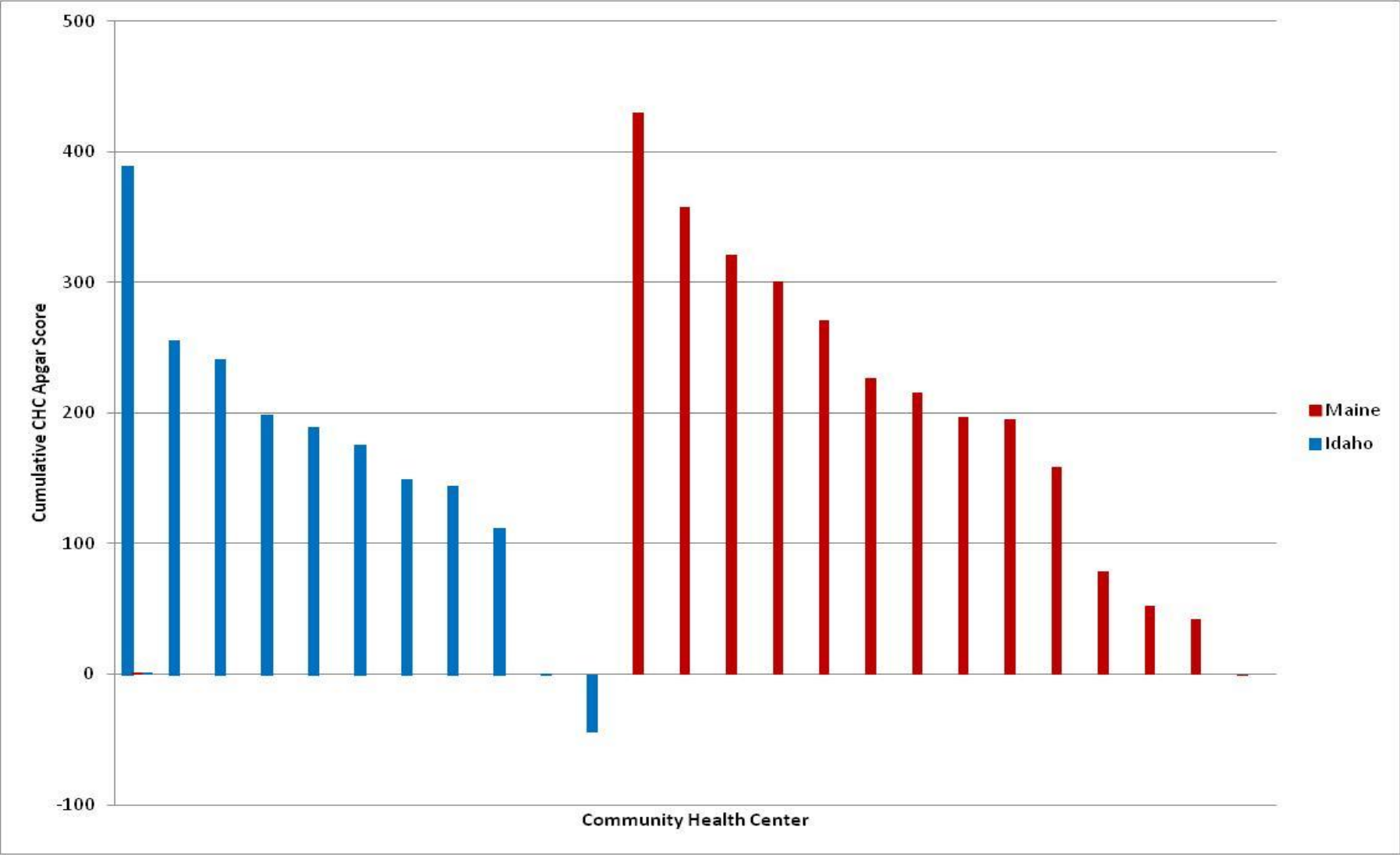
- Mental Health
- Televideo support
- Spousal satisfaction
- Perception of community
- Salary (amount)
- Production incentive
- Nursing workforce
- Demographic: underserved/payor mix
- Obstetrics: parental care (tied for 9<sup>th</sup>)
- Administration (tied for 9<sup>th</sup>)
- Specialist availability(tied for 9<sup>th</sup>)
- Welcome/recruitment program (tied for 9<sup>th</sup>)

## Maine (2012)

- Spousal satisfaction
- Social networking
- Access to larger community
- Salary (amount)
- Shopping/other services
- Specialist availability
- Mental health
- Televideo support
- Physician workforce stability
- Production incentive



Cumulative CHC Community Apgar Score by Facility – Across Two States





# Top 10 Apgar Factors - CAH



Idaho (2012)	Wyoming (2011)	North Dakota (2011)	Wisconsin (2012)	Alaska (2012)
<ul style="list-style-type: none"> <li>•Recreational opportunities</li> <li>•Internet access</li> <li>•Community need/physician support</li> <li>•Loan repayment</li> <li>•Income guarantee</li> <li>•Perception of quality</li> <li>•Competition</li> <li>•Stability of physician workforce</li> <li>•Employment status</li> <li>•Call/ practice coverage</li> </ul>	<ul style="list-style-type: none"> <li>•Employment status</li> <li>•Loan repayment</li> <li>•Income guarantee</li> <li>•Community need/physician support</li> <li>•Recreational opportunities</li> <li>•Revenue flow</li> <li>•Competition</li> <li>•Ancillary staff workforce</li> <li>•Transfer arrangements</li> <li>•Moving allowance</li> </ul>	<ul style="list-style-type: none"> <li>•Perception of Quality</li> <li>•Transfer arrangements</li> <li>•Internet access</li> <li>•Loan repayment</li> <li>•Income guarantee</li> <li>•Community need/physician support</li> <li>•Ancillary staff workforce</li> <li>•Employment status</li> <li>•Moving allowance</li> <li>•Schools</li> </ul>	<ul style="list-style-type: none"> <li>•Employment status</li> <li>•Recreational opportunities</li> <li>•Perception of quality</li> <li>•Income guarantee</li> <li>•Nursing workforce</li> <li>•Religious/cultural opportunities</li> <li>•Physician workforce stability</li> <li>•Transfer arrangement</li> <li>•Ancillary staff workforce</li> <li>•Community volunteer opportunities (tie for 10<sup>th</sup>)</li> <li>•Revenue flow (tie for 10<sup>th</sup>)</li> </ul>	<ul style="list-style-type: none"> <li>•Moving allowance</li> <li>•Recreational opportunities</li> <li>•Income guarantee</li> <li>•Emergency medical services</li> <li>•Inpatient care</li> <li>•Community need/physician support</li> <li>•Perception of quality</li> <li>•Community volunteer opportunities</li> <li>•Physical plant and equipment</li> <li>•Welcome and recruitment (tie for 10<sup>th</sup>)</li> <li>•Perception of community (tie for 10<sup>th</sup>)</li> </ul>



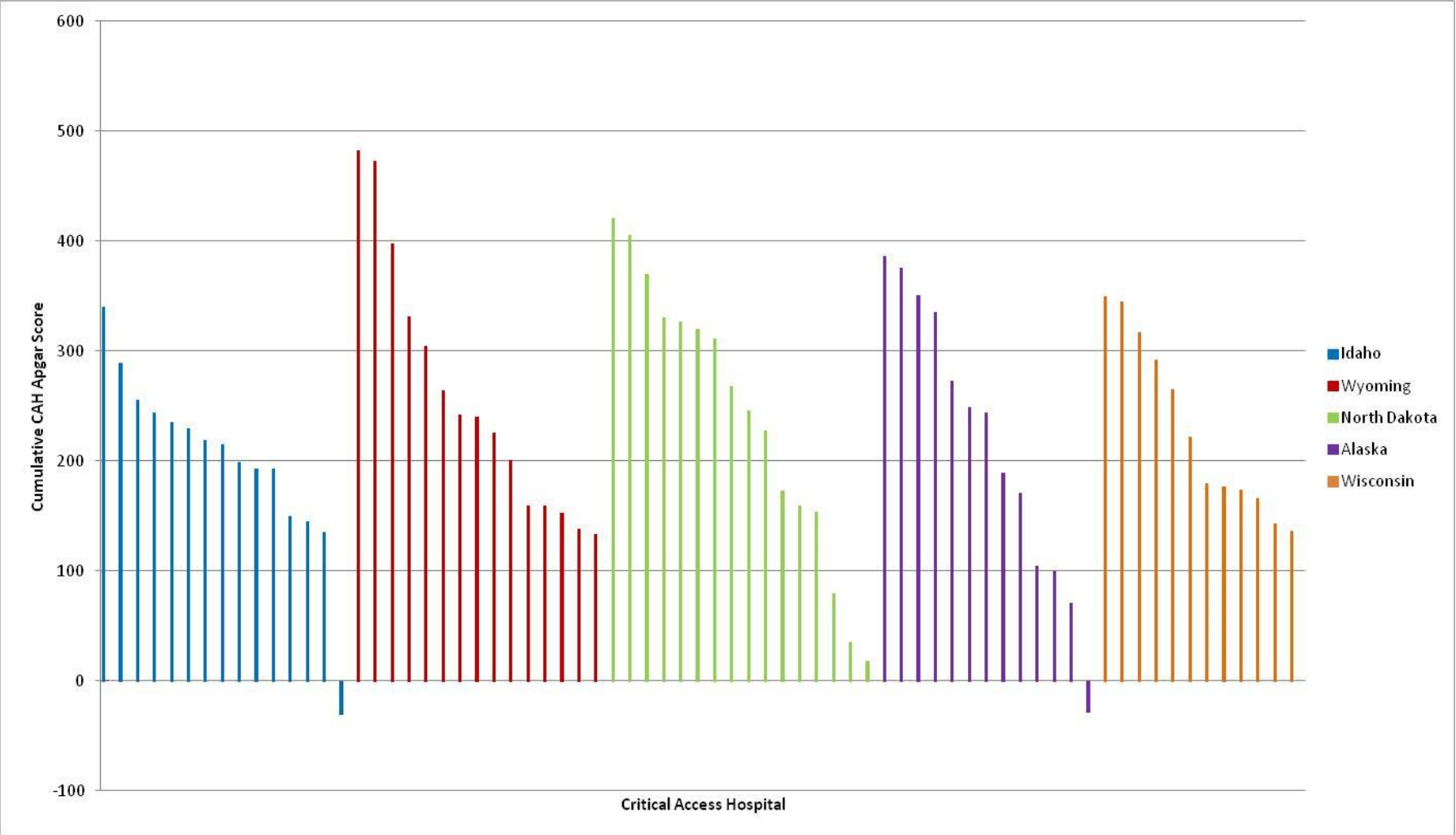
# Bottom 10 Apgar Factors - CAH



Idaho (2012)	Wyoming (2011)	North Dakota (2011)	Wisconsin (2012)	Alaska (2012)
<ul style="list-style-type: none"> <li>•Spousal satisfaction</li> <li>•Shopping/other services</li> <li>•Schools</li> <li>•Mental health</li> <li>•Allied mental health workforce</li> <li>•C-section</li> <li>•Access to larger community</li> <li>•Electronic medical records</li> <li>•Obstetrics</li> <li>•Religious/ Cultural opportunities</li> </ul>	<ul style="list-style-type: none"> <li>•Spousal satisfaction</li> <li>•Shopping/other services</li> <li>•Access to larger community</li> <li>•Mental health</li> <li>•Social networking</li> <li>•Allied mental health workforce</li> <li>•Religious/cultural opportunities</li> <li>•Climate</li> <li>•Electronic medical records</li> <li>•Nursing home</li> </ul>	<ul style="list-style-type: none"> <li>•Climate</li> <li>•Spousal satisfaction</li> <li>•Shopping/other services</li> <li>•Mental health</li> <li>•Access to larger community</li> <li>•Emergency room coverage</li> <li>•Demographic/patient mix</li> <li>•Social networking</li> <li>•Allied mental health workforce</li> <li>•Electronic medical records</li> </ul>	<ul style="list-style-type: none"> <li>•Spousal satisfaction</li> <li>•Televideo support</li> <li>•Inpatient care</li> <li>•Shopping/other services</li> <li>•Mental health</li> <li>•Social networking</li> <li>•Climate</li> <li>•Electronic medical records</li> <li>•Perception of community</li> <li>•Mid-level supervision</li> </ul>	<ul style="list-style-type: none"> <li>•Spousal satisfaction</li> <li>•Shopping/other services</li> <li>•Climate</li> <li>•Access to larger community</li> <li>•Part-time opportunities</li> <li>•C-section</li> <li>•Endoscopy, surgery</li> <li>•Employment status</li> <li>•Electronic medical records</li> <li>•Social networking</li> </ul>



Cumulative CAH Community Apgar Score by Hospital – Across Five States





# Selected Results – Top 10 Apgar Factors



Idaho (2016)	North Dakota (2016)	Indiana (2015)	Montana (2015)	Iowa (2015)
<ul style="list-style-type: none"> <li>•Recreational opportunities</li> <li>•Internet access</li> <li>•Employment status</li> <li>•Community need/physician support</li> <li>•Loan repayment</li> <li>•Transfer arrangements</li> <li>•Income guarantee</li> <li>•Competition</li> <li>•Stability of physician workforce</li> <li>•Ancillary staff workforce (Tie)</li> <li>•Community volunteer opportunities(Tie)</li> </ul>	<ul style="list-style-type: none"> <li>•Transfer arrangements</li> <li>•Ancillary staff workforce</li> <li>•Competition</li> <li>•Income guarantee</li> <li>•Community need/ physician support</li> <li>•C-section</li> <li>•Emergency medical services</li> <li>•Obstetrics</li> <li>•Perception of quality</li> <li>•Schools (Tie)</li> <li>•Mid-level provider workforce (Tie)</li> </ul>	<ul style="list-style-type: none"> <li>•Internet access</li> <li>•Community need/ physician support</li> <li>•Obstetrics</li> <li>•Endoscopy/surgery</li> <li>•Physical plant and equipment</li> <li>•Employment status</li> <li>•Emergency room coverage</li> <li>•C-section</li> <li>•Hospital sponsored CME</li> <li>•Start-up/marketing costs (Tie)</li> <li>•Schools (Tie)</li> </ul>	<ul style="list-style-type: none"> <li>•Community need/ physician support</li> <li>•Perception of quality</li> <li>•Employment status</li> <li>•Competition</li> <li>•Transfer arrangements</li> <li>•Income guarantee</li> <li>•Teaching</li> <li>•Internet access</li> <li>•Physical plant and equipment</li> <li>•Recreational opportunities</li> </ul>	<ul style="list-style-type: none"> <li>•Schools</li> <li>•Hospital leadership</li> <li>•Perception of quality</li> <li>•Income guarantee</li> <li>•Emergency room coverage</li> <li>•Ancillary staff workforce</li> <li>•Mid-level provider workforce</li> <li>•Emergency medical services</li> <li>•Community need/ physician support</li> <li>•Physical plant and equipment</li> </ul>



# Selected Results – Bottom 10 Apgar Factors



## Idaho (2016)

- Mental Health
- Schools
- Shopping/other services
- Allied mental health workforce
- Spousal satisfaction
- Electronic medical records
- Access to larger community
- Perception of community
- Obstetrics
- Nursing workforce

## North Dakota (2016)

- Spousal satisfaction
- Mental health
- Electronic medical records
- Shopping/other services
- Access to larger community
- Allied mental health workforce
- Climate
- Emergency room coverage
- Specialist availability
- Payor mix

## Indiana (2015)

- Spousal satisfaction
- Social networking
- Shopping/other services
- Welcome and recruitment
- Allied mental health workforce
- Perception of community
- Mental health
- Demographic/patient mix
- Climate
- Stability of physician workforce

## Montana (2015)

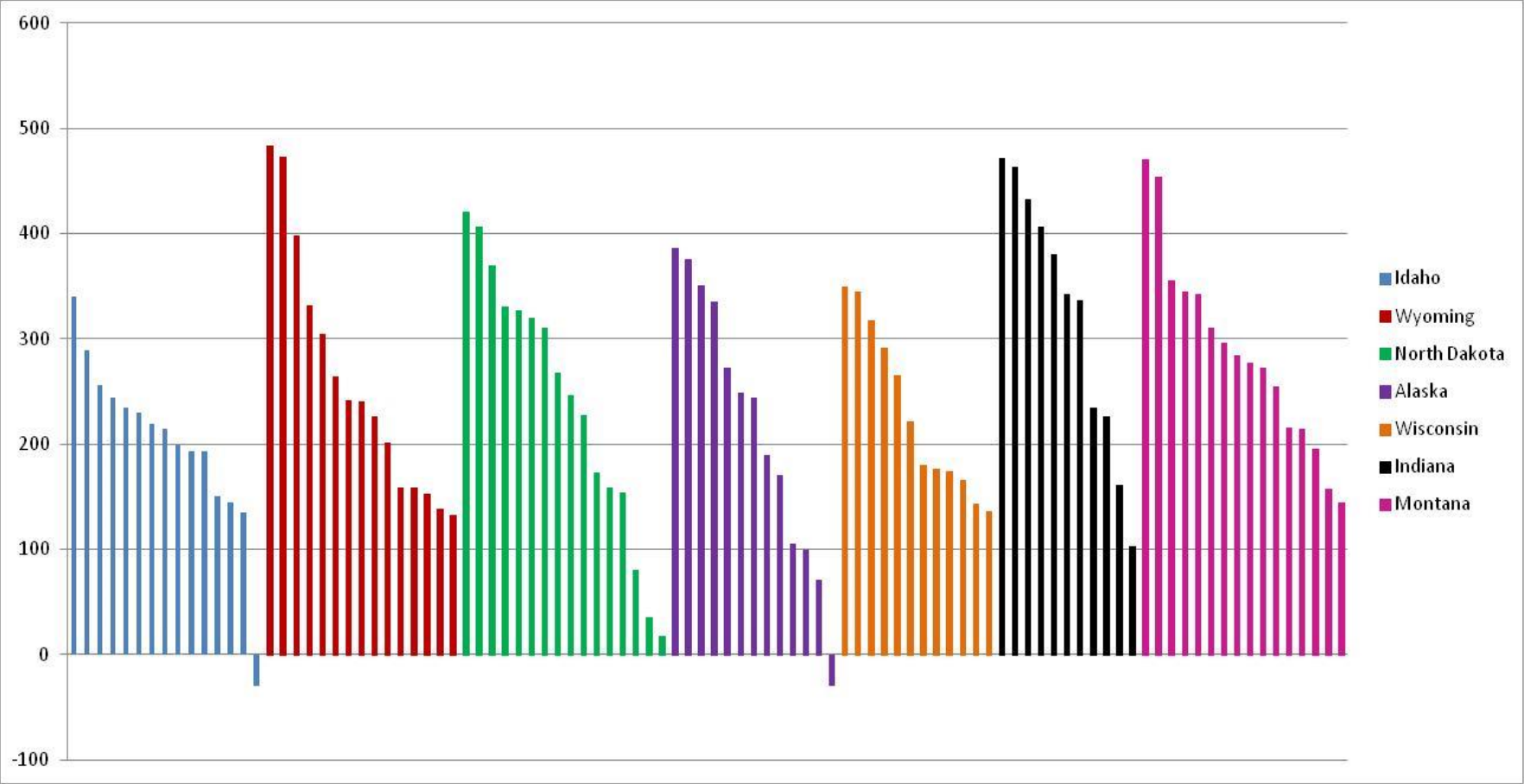
- Spousal satisfaction
- Allied mental health workforce
- Mental health
- Shopping/other services
- Administration
- Nursing workforce
- Climate
- Electronic medical records
- Access to larger community
- Social networking

## Iowa (2015)

- Mental Health
- Climate
- Spousal satisfaction
- Allied mental health workforce
- Shopping/other services
- Part-time opportunities
- Access to larger community
- Electronic medical records
- Teaching
- Demographic/ patient mix



Cumulative CAH Community Apgar Score by Facility – Across Seven States





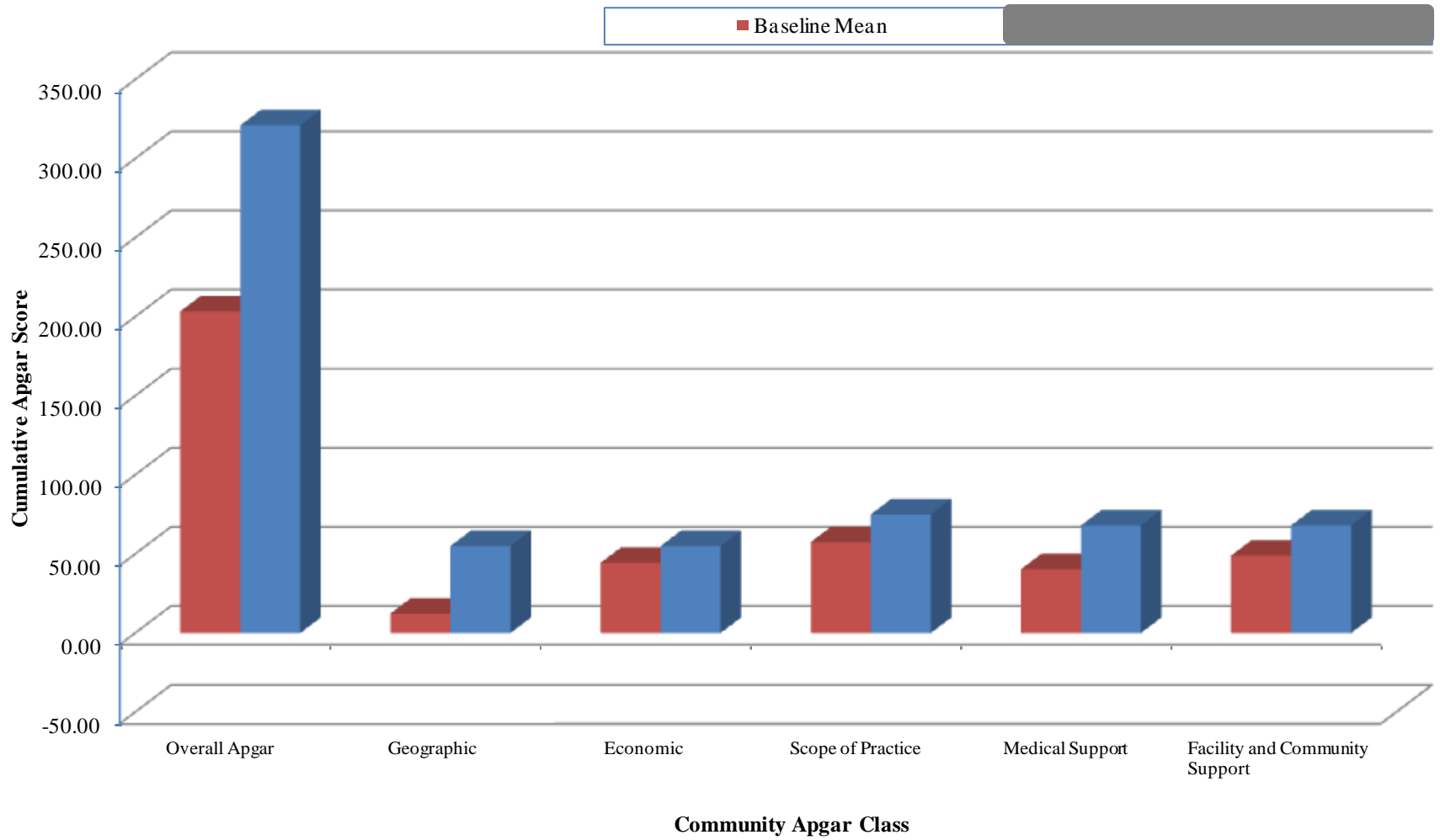
# Case Study One





# CHC X

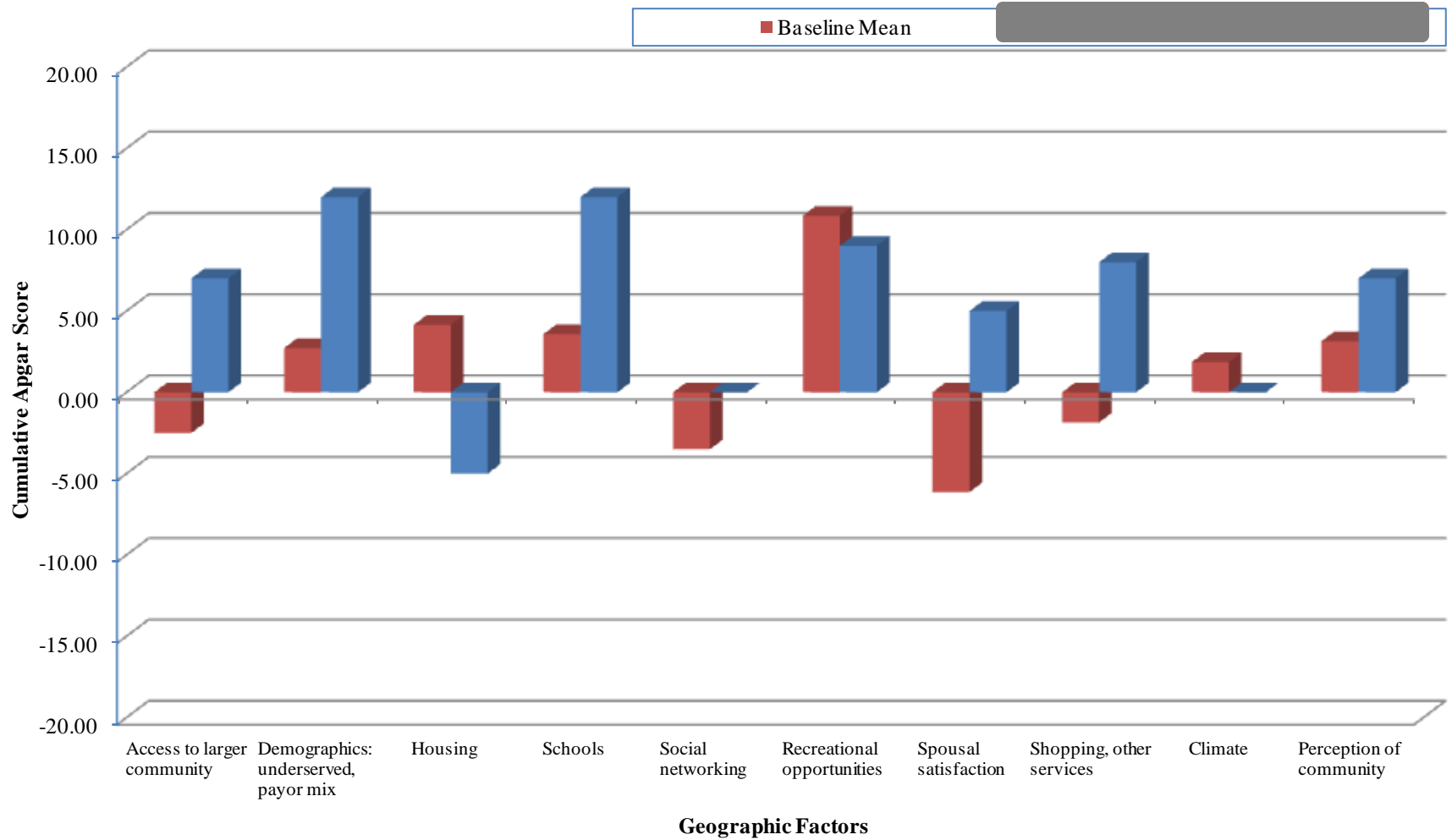
## Comparative Cumulative Apgar Score





CHC X

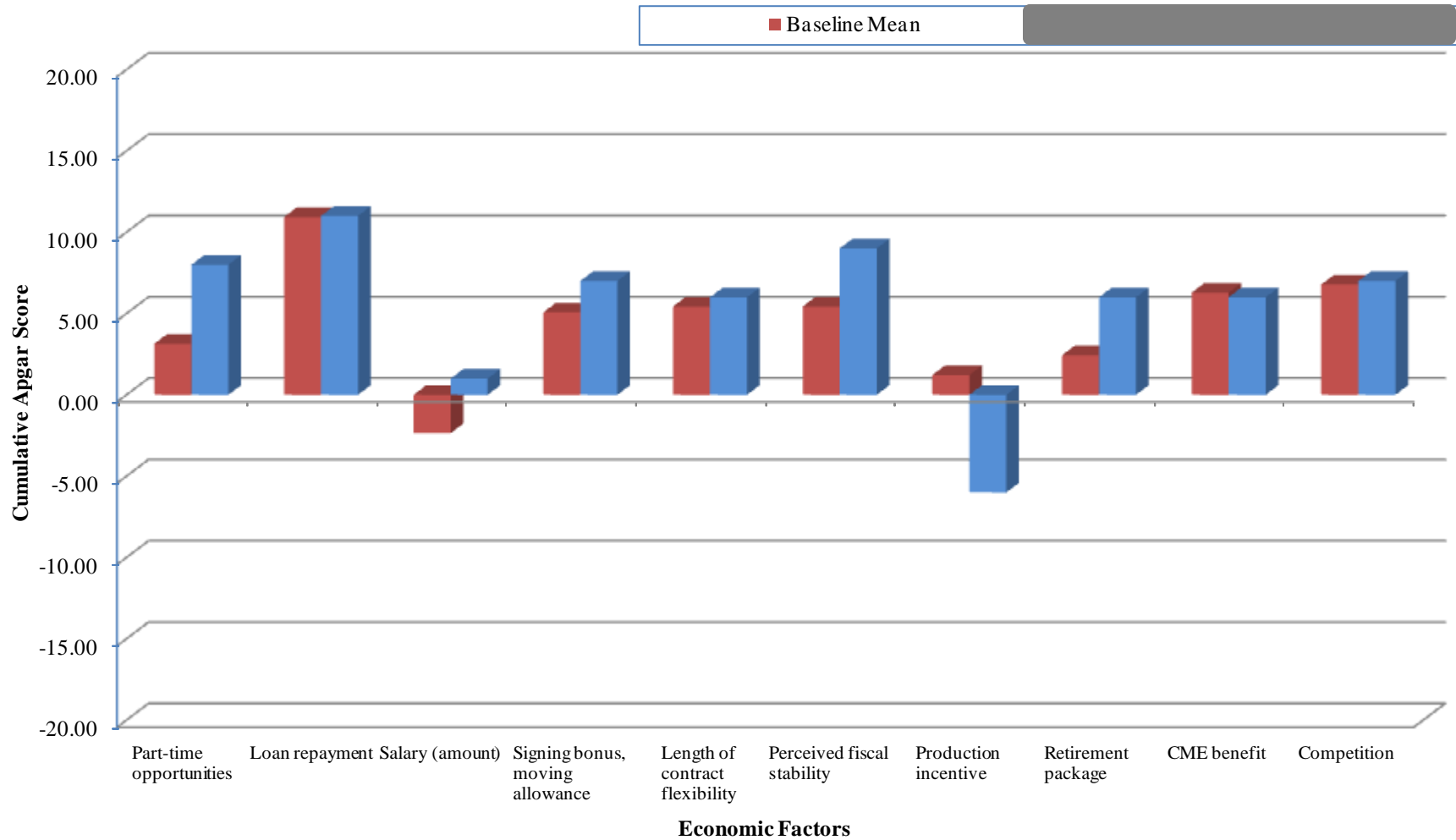
## Comparative Cumulative Apgar Score for Geographic Class





CHC X

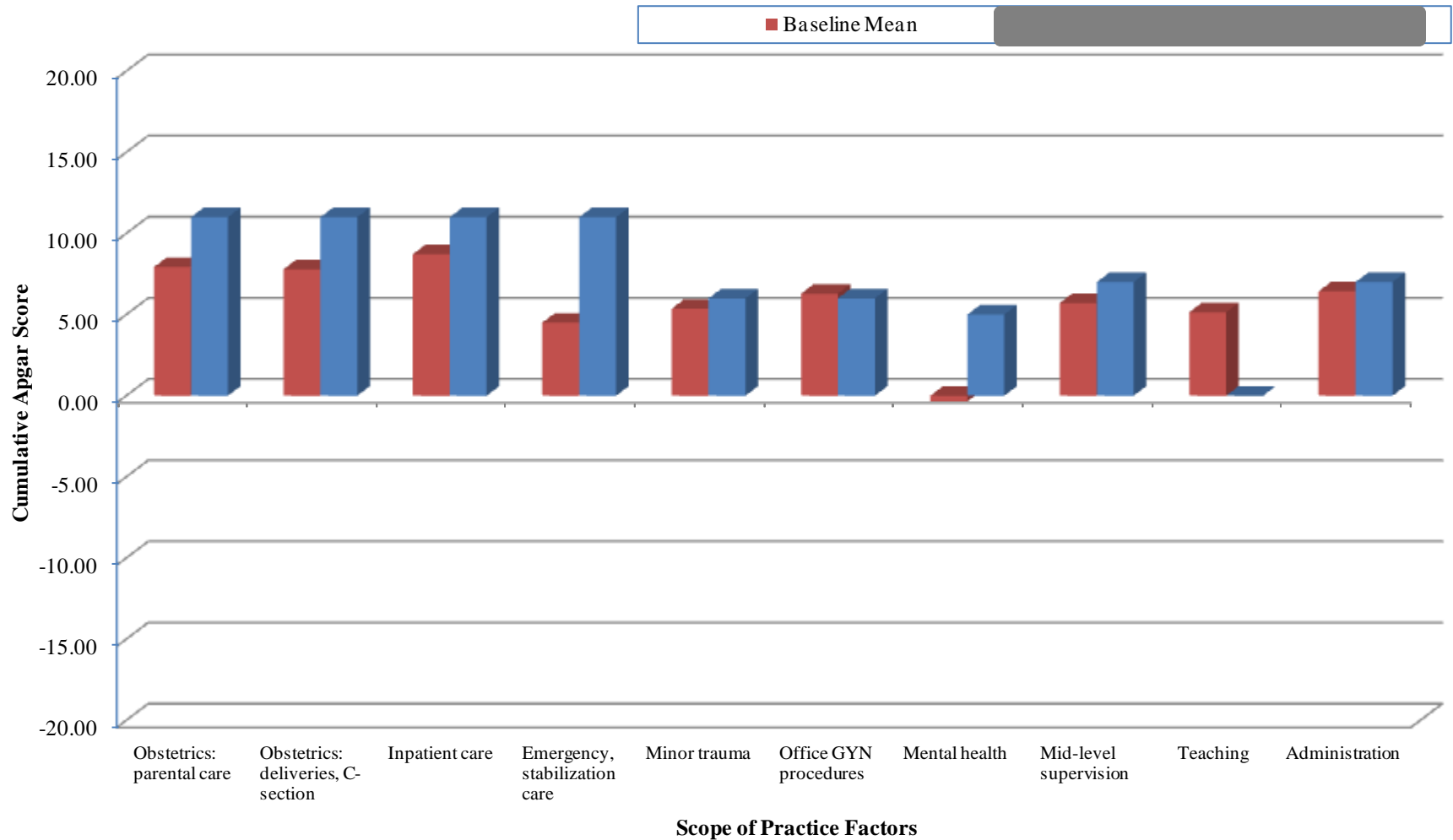
## Comparative Cumulative Apgar Score for Economic Class





CHC X

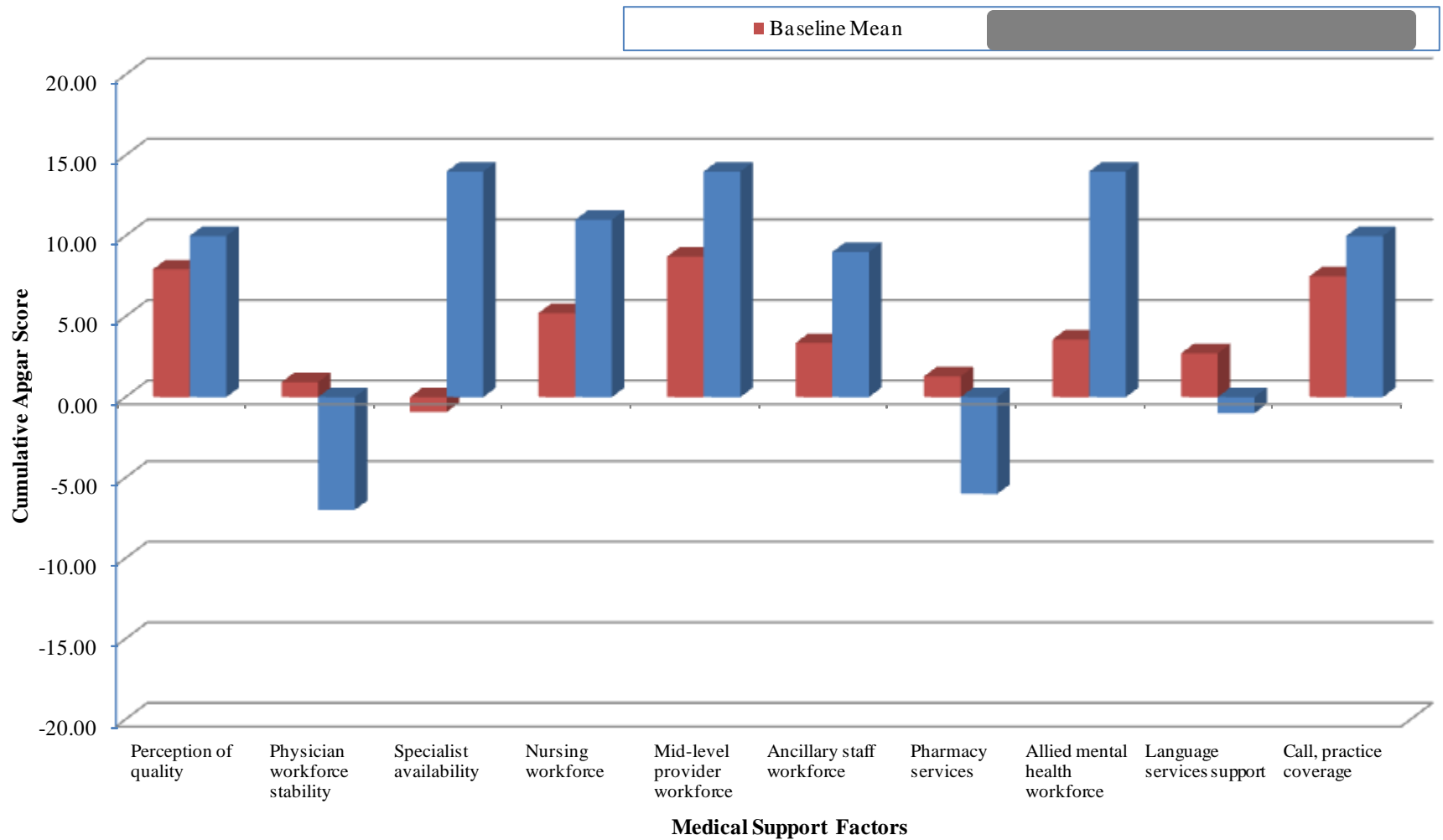
## Comparative Cumulative Apgar Score for Scope of Practice





CHC X

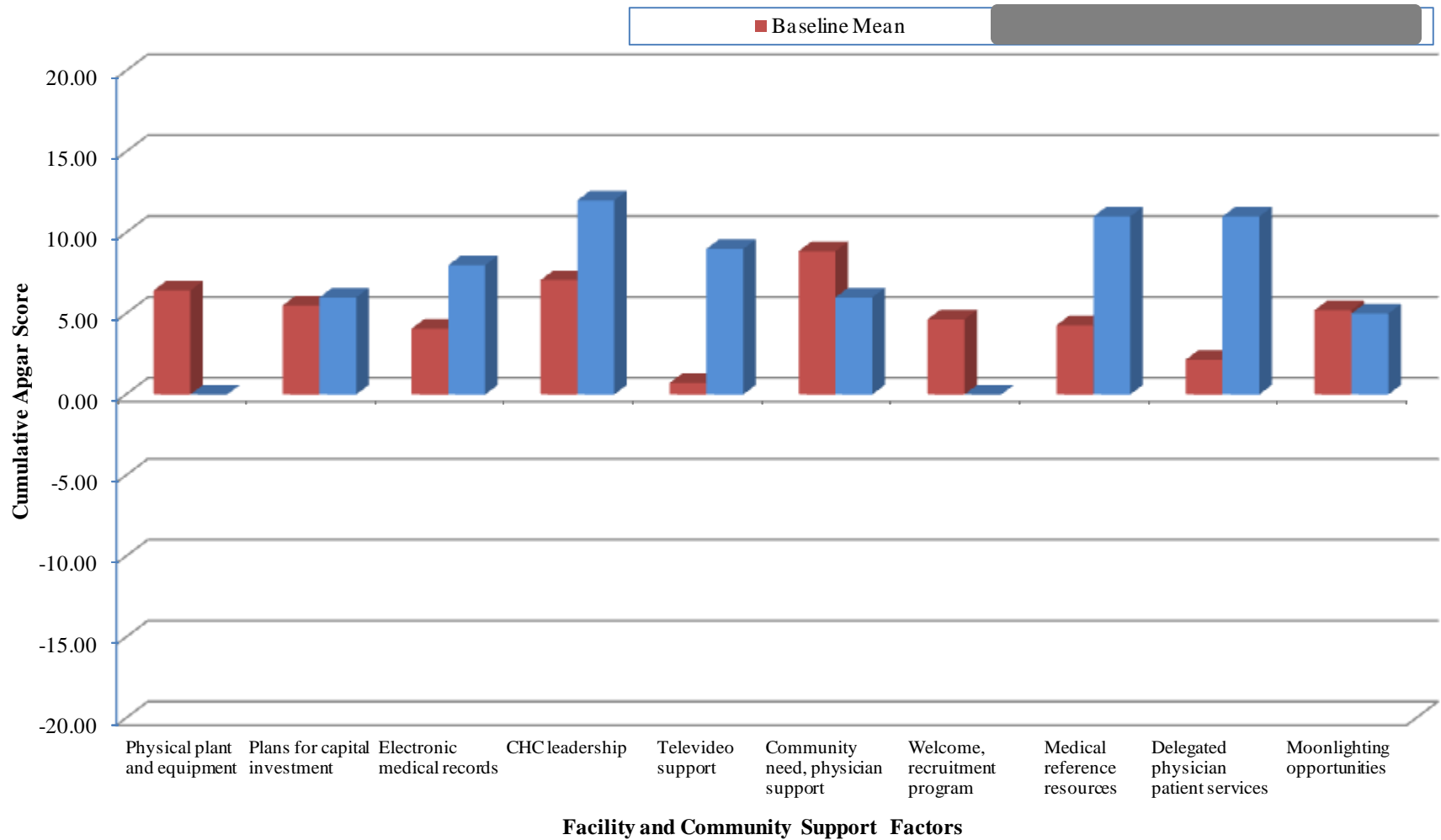
## Comparative Cumulative Apgar Score for Medical Support





CHC X

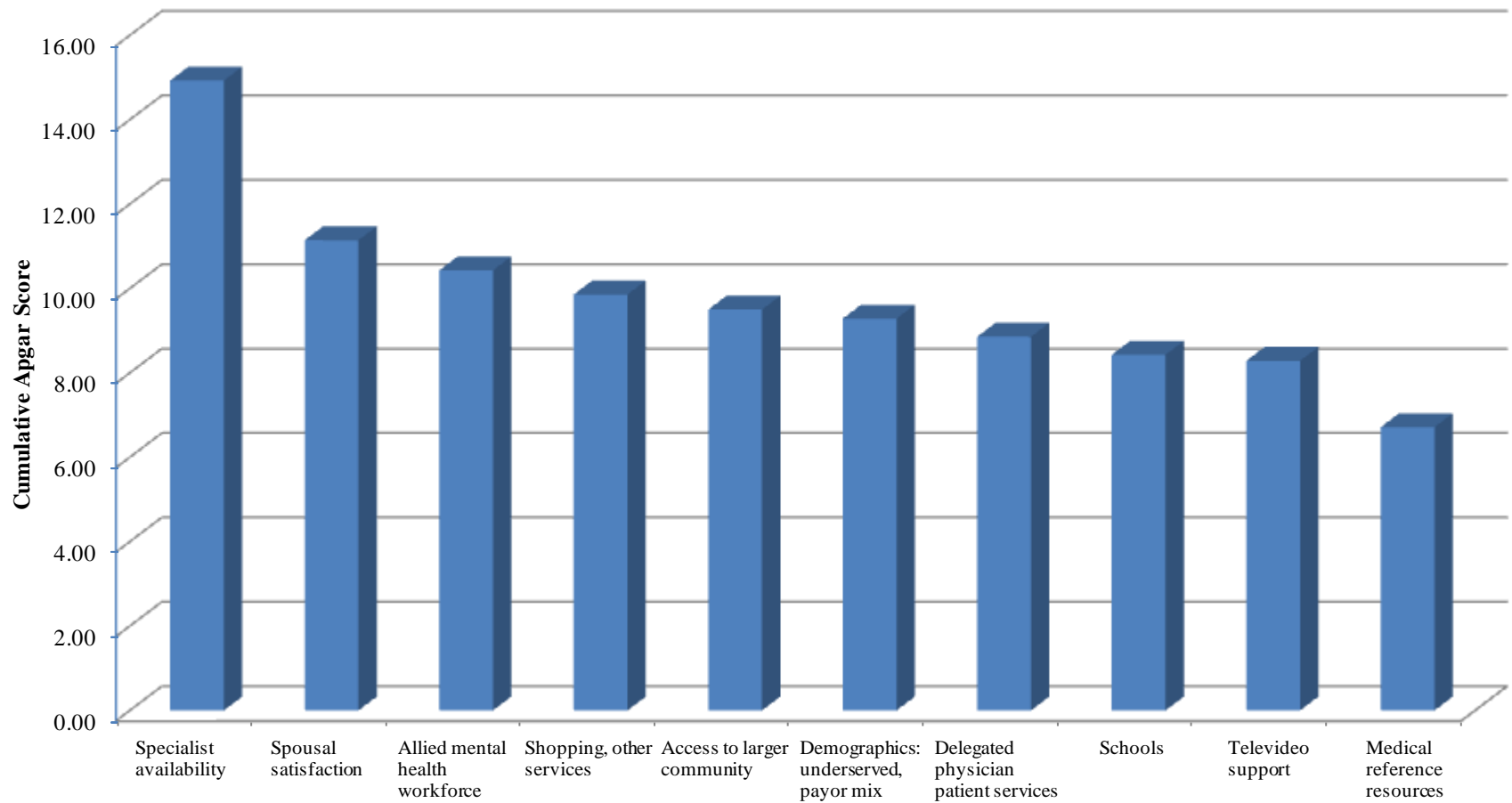
## Comparative Cumulative Apgar Score for Facility and Community Support





CHC X

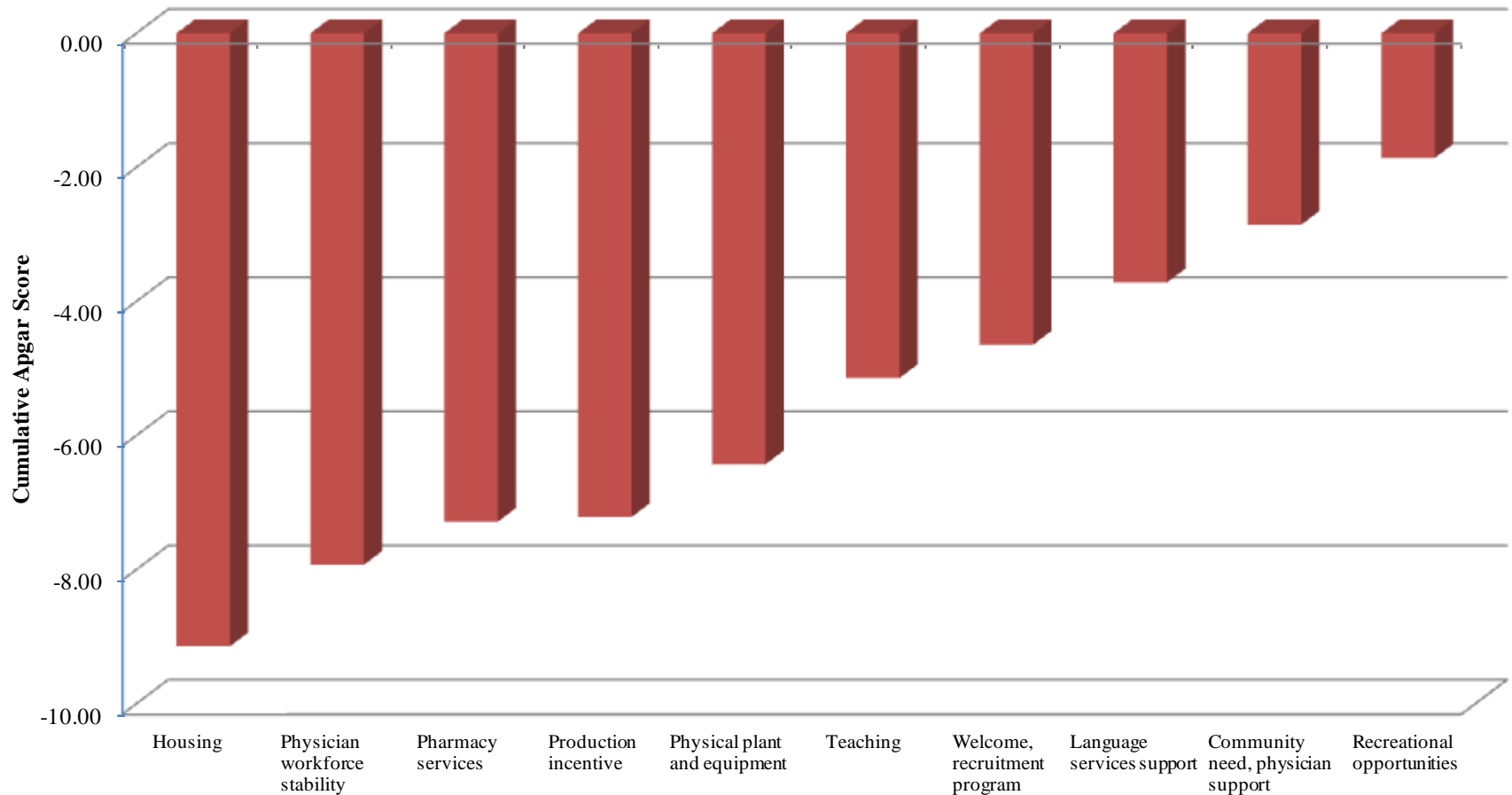
## Top 10 Cumulative Apgar Variance Factors across All 50 Factors





CHC X

## Bottom 10 Cumulative Apgar Variance Factors across All 50 Factors



**Bottom 10 Apgar Variance Factors**

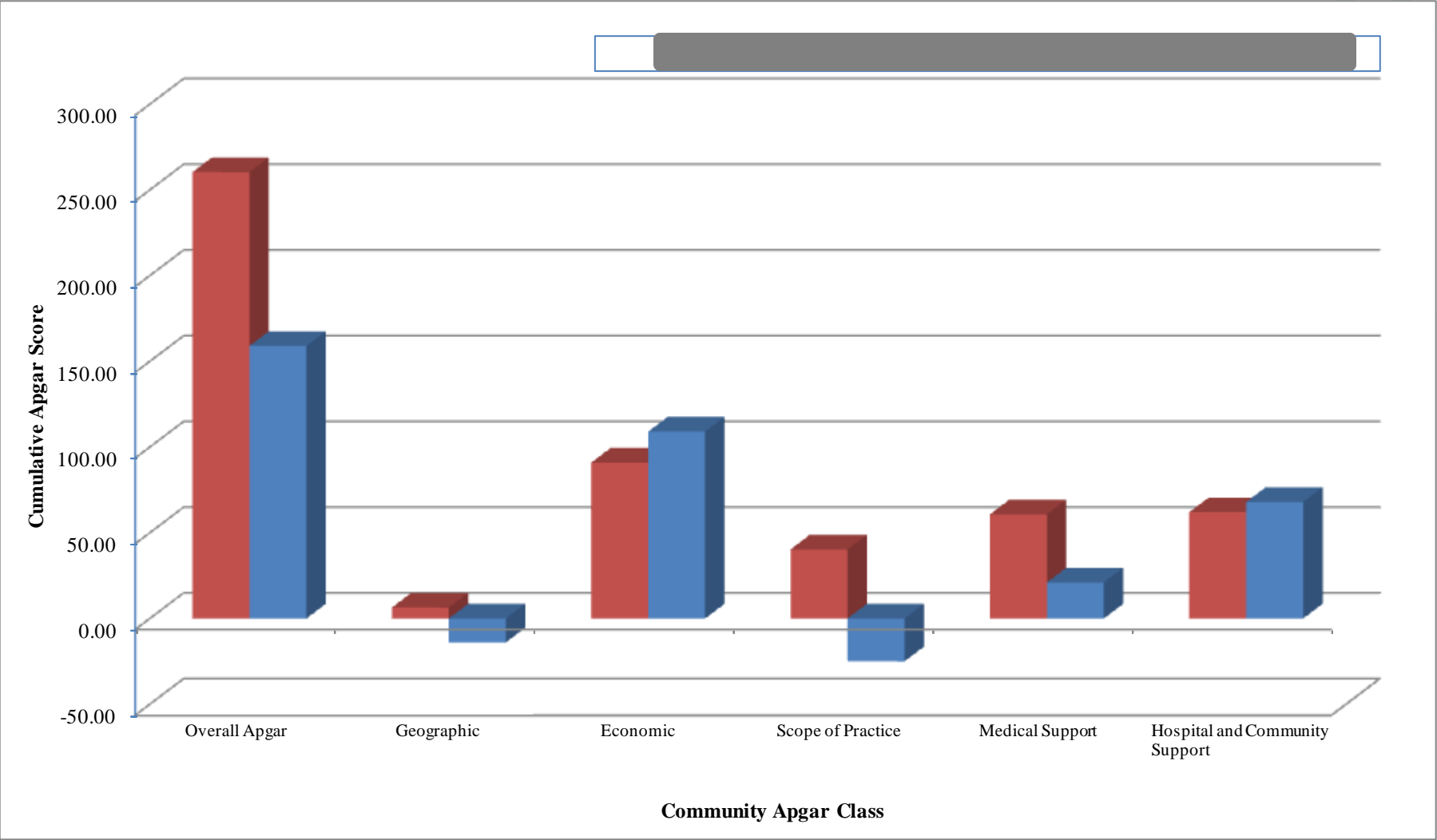


# Case Study Two





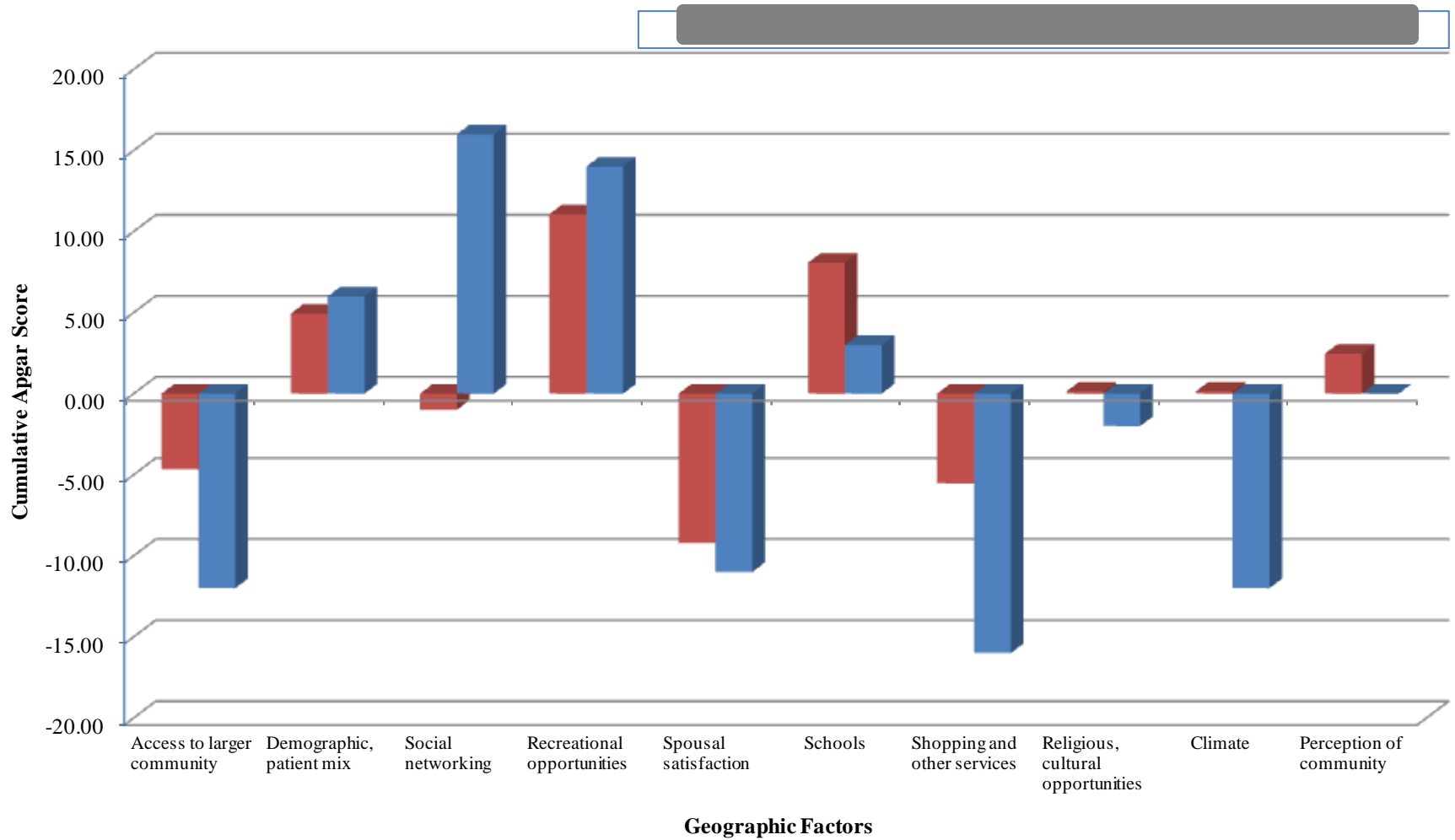
Hospital X  
Comparative Cumulative Apgar Score





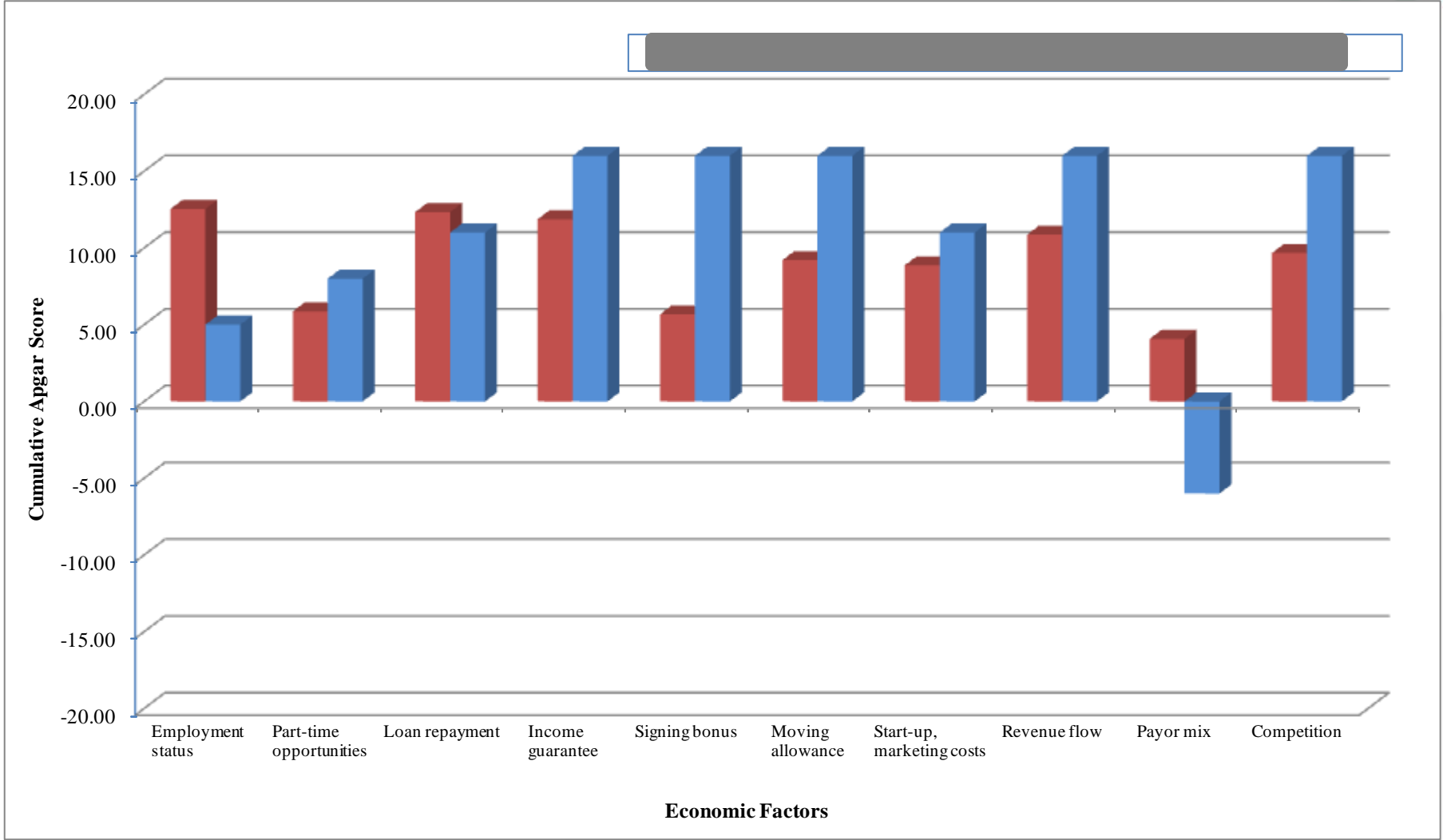
Hospital X

## Comparative Cumulative Apgar Score for Geographic Class





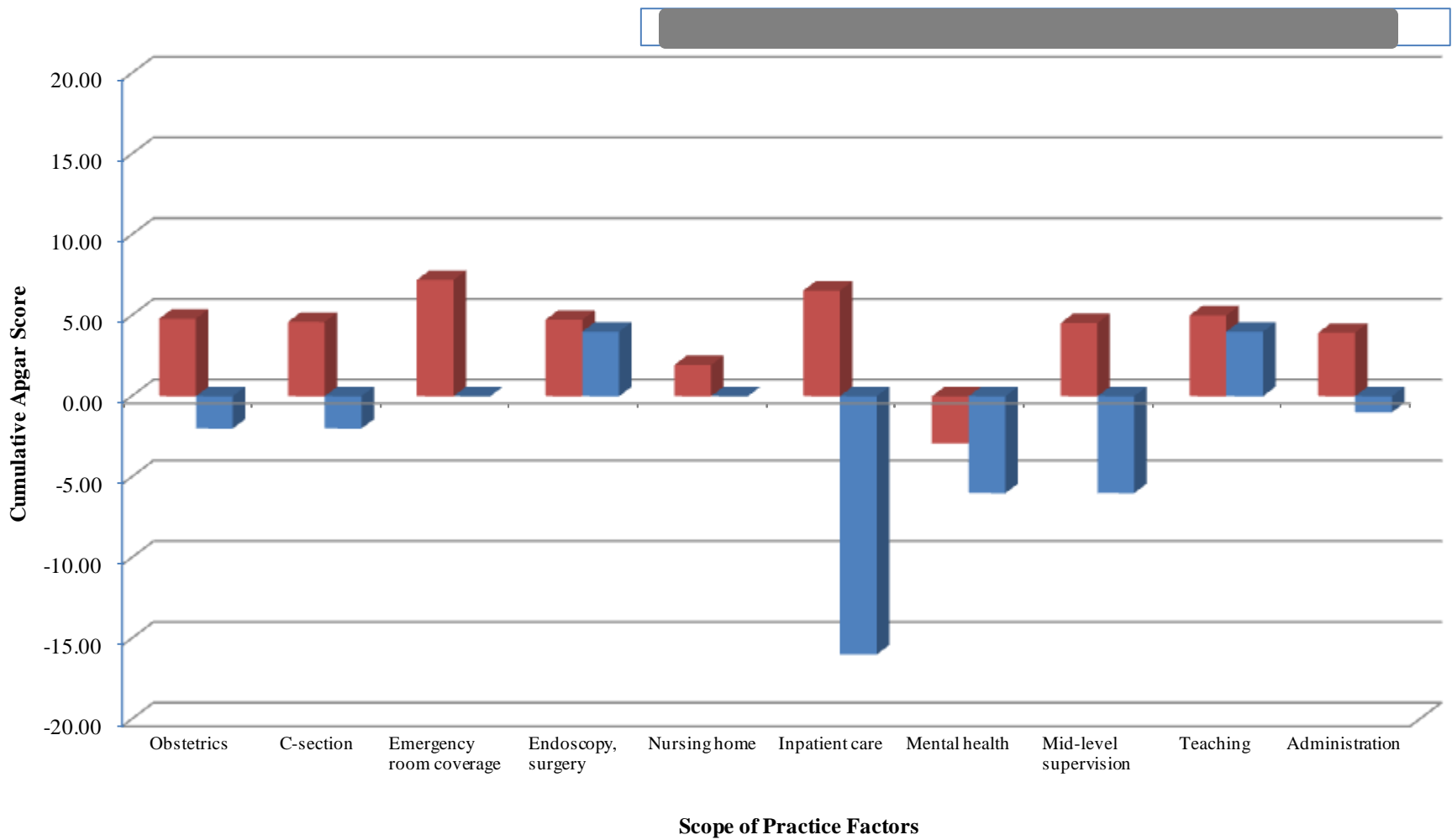
Hospital X  
Comparative Cumulative Apgar Score for Economic Class





Hospital X

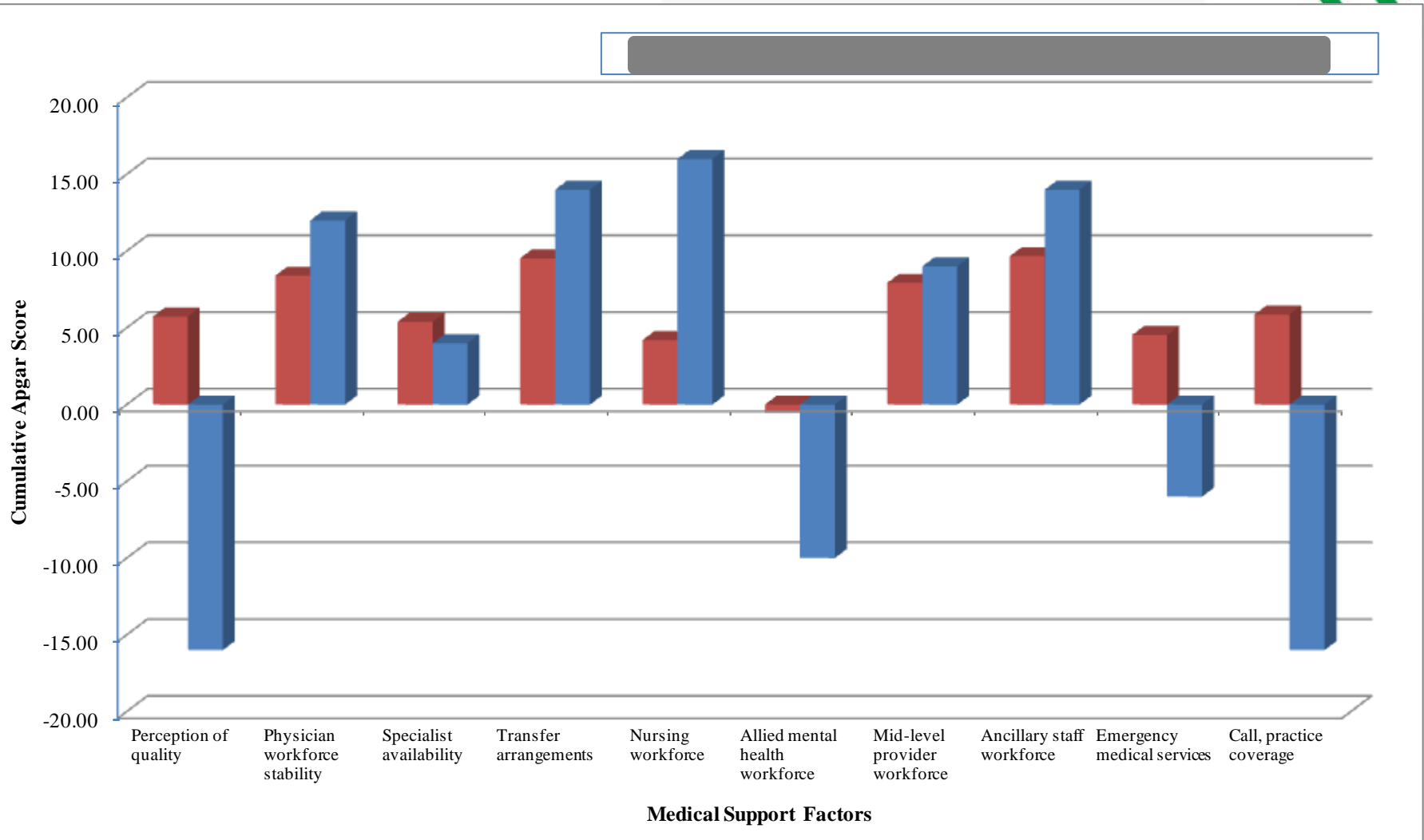
## Comparative Cumulative Apgar Score for Scope of Practice Class





Hospital X

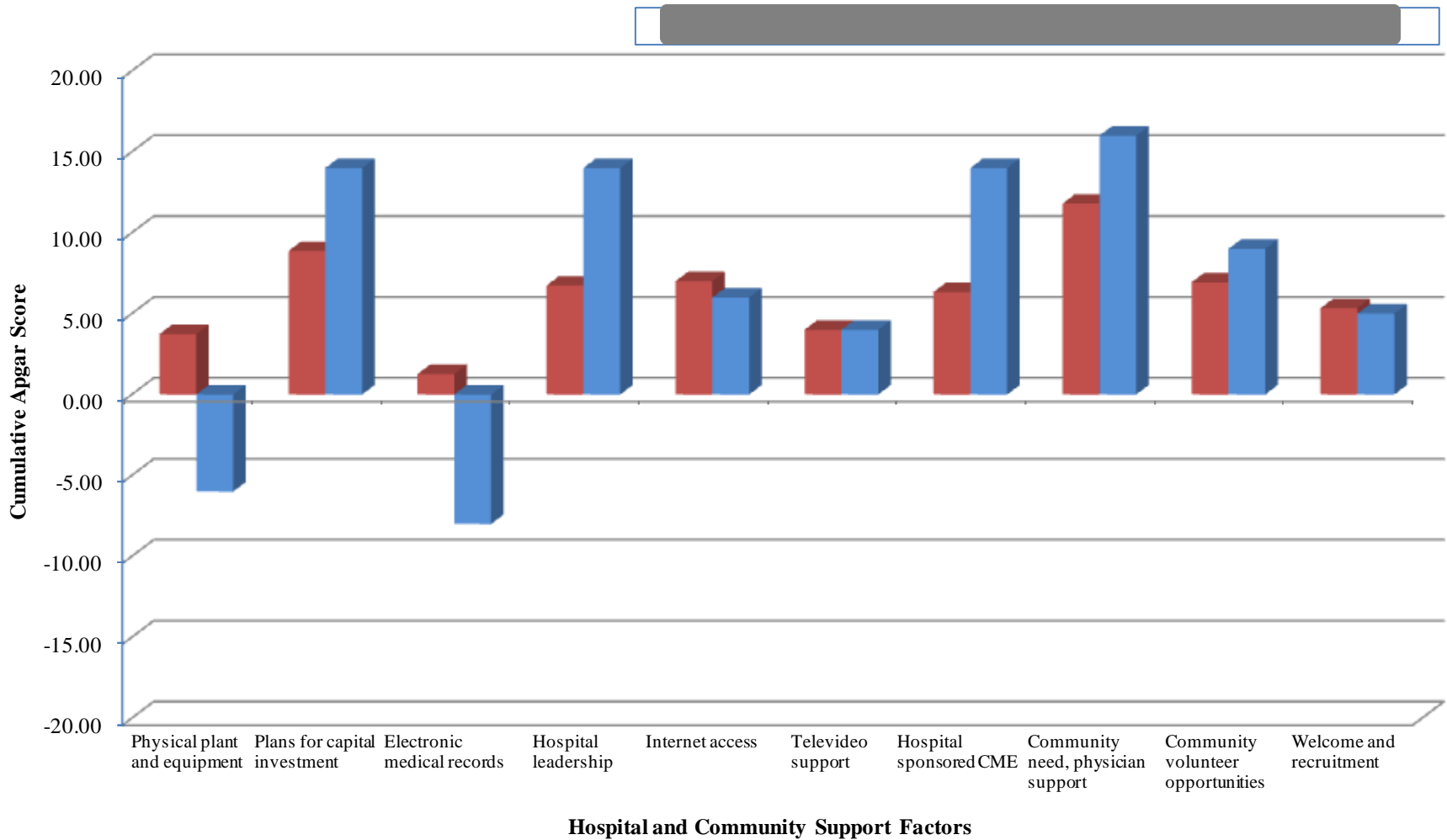
## Comparative Cumulative Apgar Score for Medical Support Class





## Hospital X

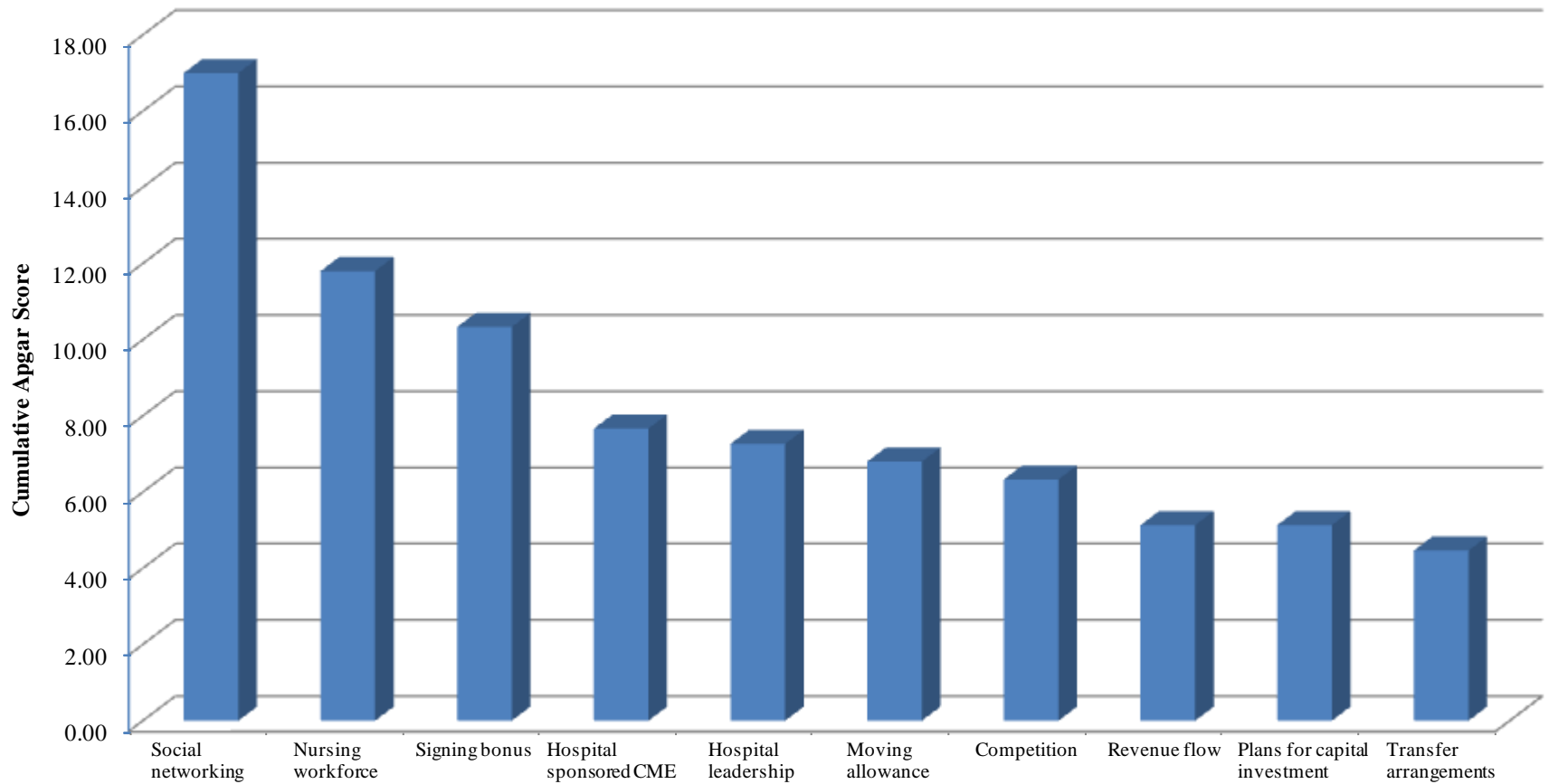
### Comparative Cumulative Apgar Score for Community and Hospital Support Class





Hospital X

Top 10 Cumulative Apgar Variance Factors across All 50 Factors

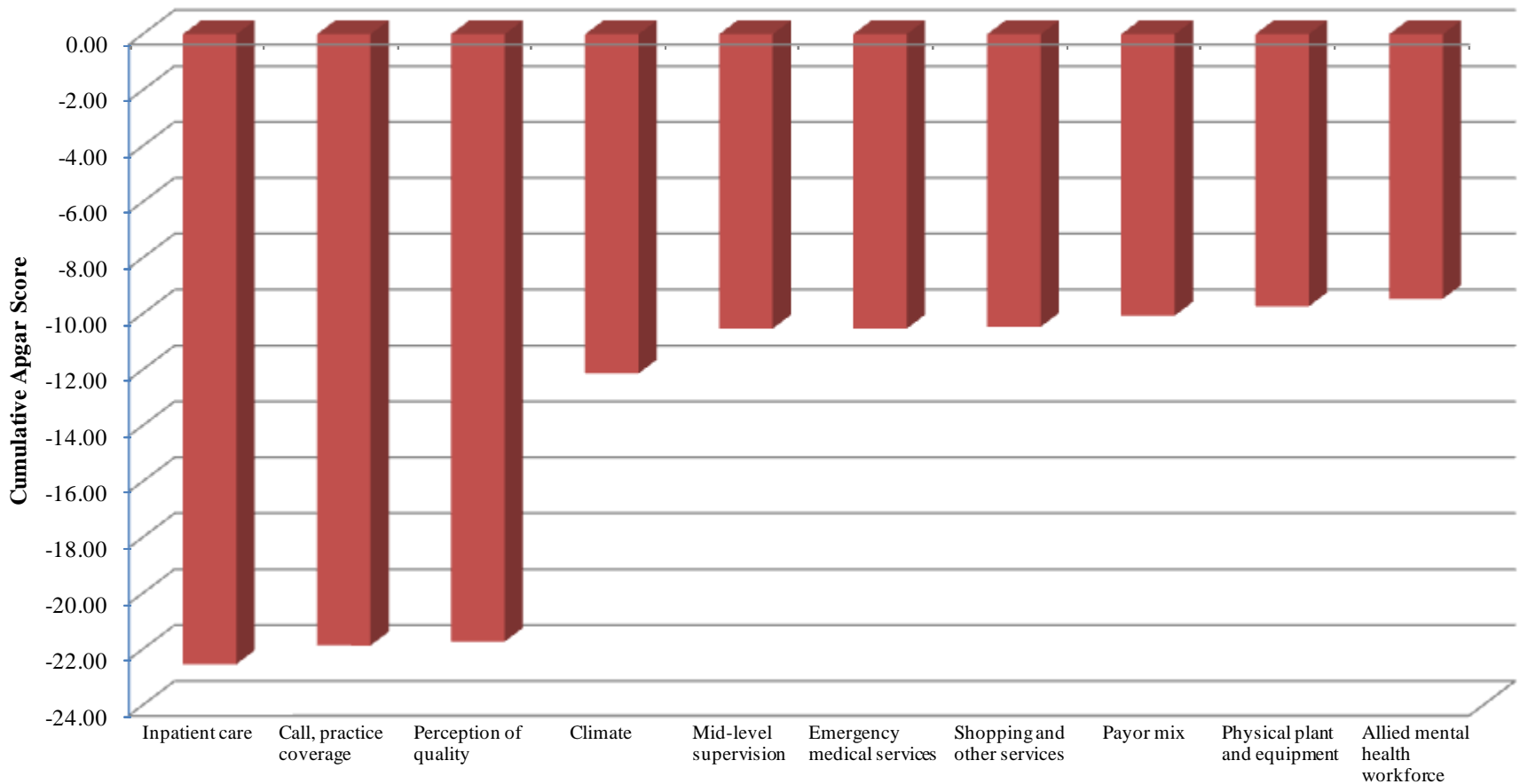


**Top 10 Apgar Variance Factors**



## Hospital X

### Bottom 10 Cumulative Apgar Variance Factors across All 50 Factors



**Bottom 10 Apgar Variance Factors**



# Apgar Solutions – Idaho



- Apgar factor – “Mental Health”
- Staffing and access to care
- Ancillary mental health staffing low
- Physician burden providing direct mental health service high
- ASTHO grant funded onsite strategic planning
  - Team based mental health care
  - Integrated Behavioral Health



# Apgar Solutions – Idaho



- Apgar factor – “Employment Status”
- Physician contracting
- Best practices in flexible physician contracting
- Constructing the win-win in physician recruitment
- ASTHO grant funded onsite strategic planning
  - Expert CFO/Physician team
  - Contract models and role play



# Apgar Solutions – North Dakota



- Apgar factor – “Perception of Community”
- Candidate’s first impression – usually virtual
- Facilities have outdated websites and few materials to send to interested providers
  - No chance to highlight their strengths
  - Compounds perception of isolation
- University of ND Center for Rural Health
  - Pilot project to create marketing package for CAHs in need
- Marketing materials
  - Website, marketing videos, printed materials



# Apgar Solutions – North Dakota



- Process:
  - Send skilled staff to rural community
  - Full day of video interviews, photos, etc...
  - Pilot package was offered at no cost to facility
- Outcomes
  - New website, marketing videos, printed branding
  - Facility has more modern online presence
- Staffing
  - 3 CRH staff members
  - Travel



# Broadening Applications



- 3RNET Community Apgar “Factors Books”
- 3RNET “Academy” includes Community Apgar learnings
- Benjamin Anderson’s use of USDA’s soil principals, incorporating Community Apgar learnings
- Ongoing development of Community Apgar Tools to profession-specific and healthcare setting-specific applications
- Feedback to medical and health professions education curriculum and place-based learning (i.e. training in rural for rural)



# Next Steps



- Continue to share updated and new learnings related to Community Apgar Projects
- Share and collaborate with 3RNET, enhancing services and knowledge
- Update and adapt research and services related to Community Apgar and its broader applications
- Look for new opportunities to expand Community Apgar research and the communities it serves



# CEO CAQ Development: Class/Factor Examples

## Geographic

- Recreational opportunities
- Housing
- Schools
- Spousal/ Significant other satisfaction

## Economic

- Salary
- Hospital budget constraints
- Hospital sponsored educational & professional development
- Retention bonus

## Scope of Responsibility

- CEO financial skills requirement
- Management of physician workforce
- Board of Directors relationships
- Administrative call

## Administrator Support

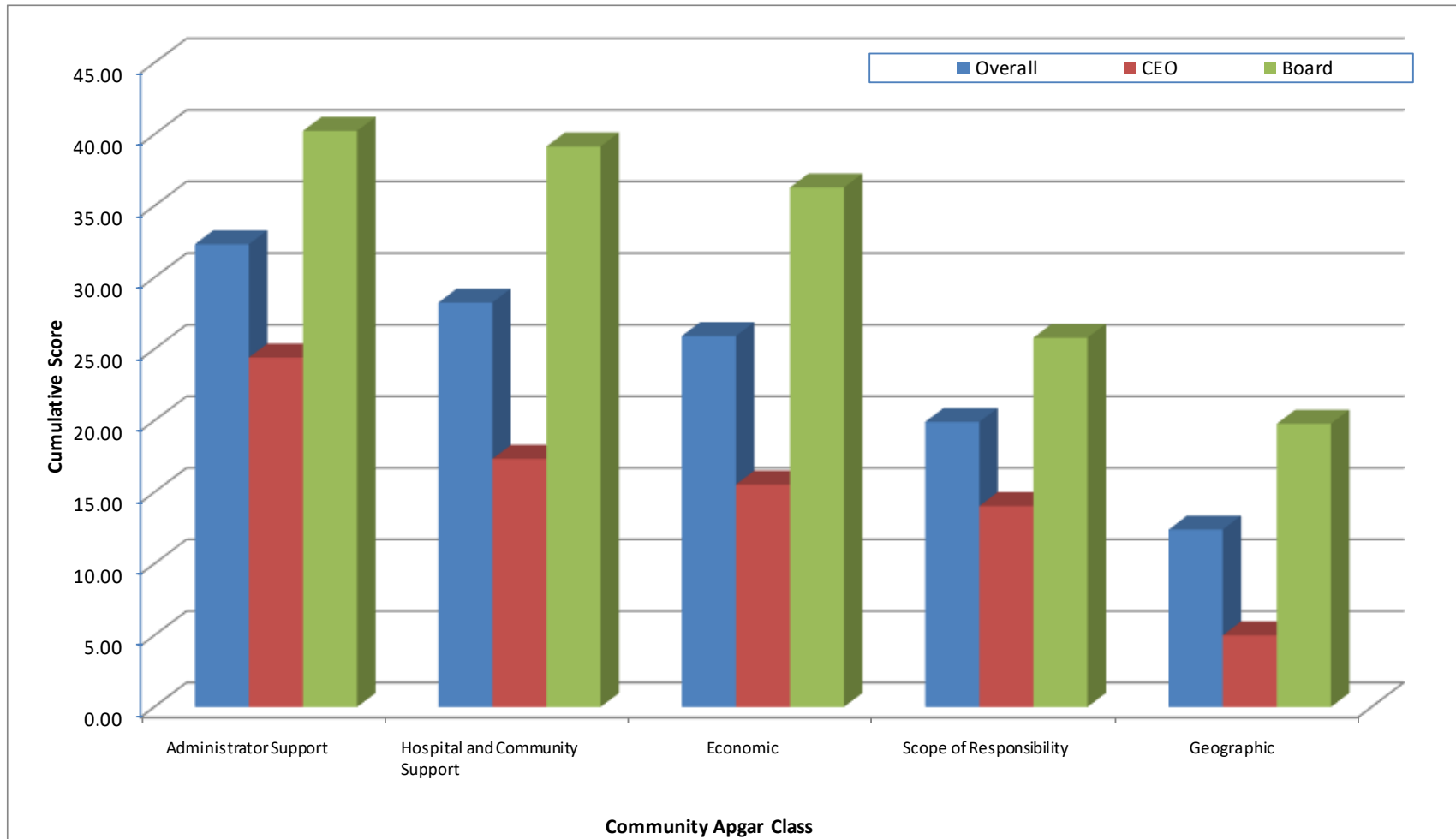
- Collegial support
- Stability & strength of Board
- Services Responsive to Community Need
- CEO support staff

## Hospital & Community Support

- CEO induction & orientation program
- Community need & support of CEO
- Physical plant & equipment
- Marketing support

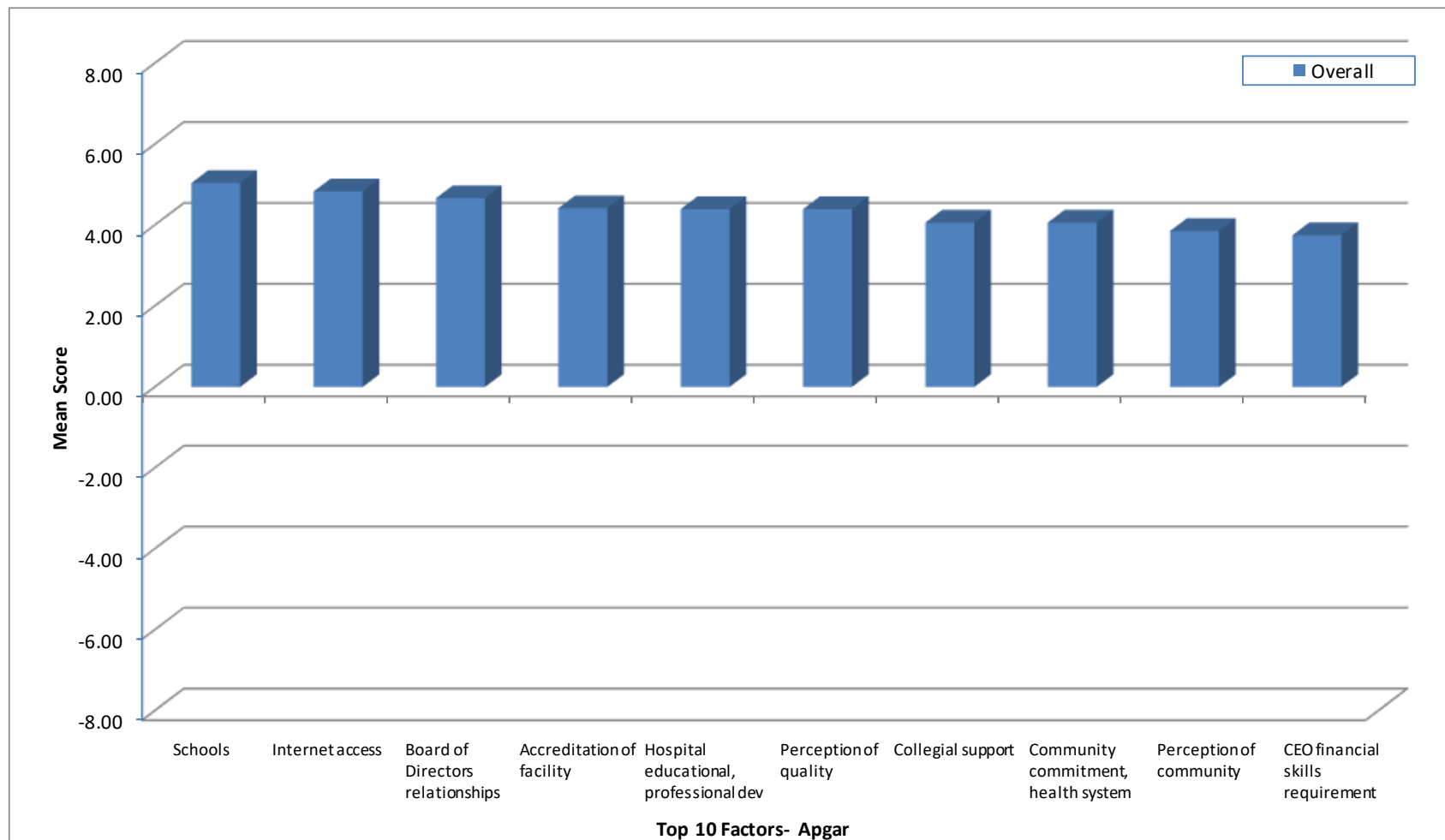


Class CEO Community Apgar Cumulative Score



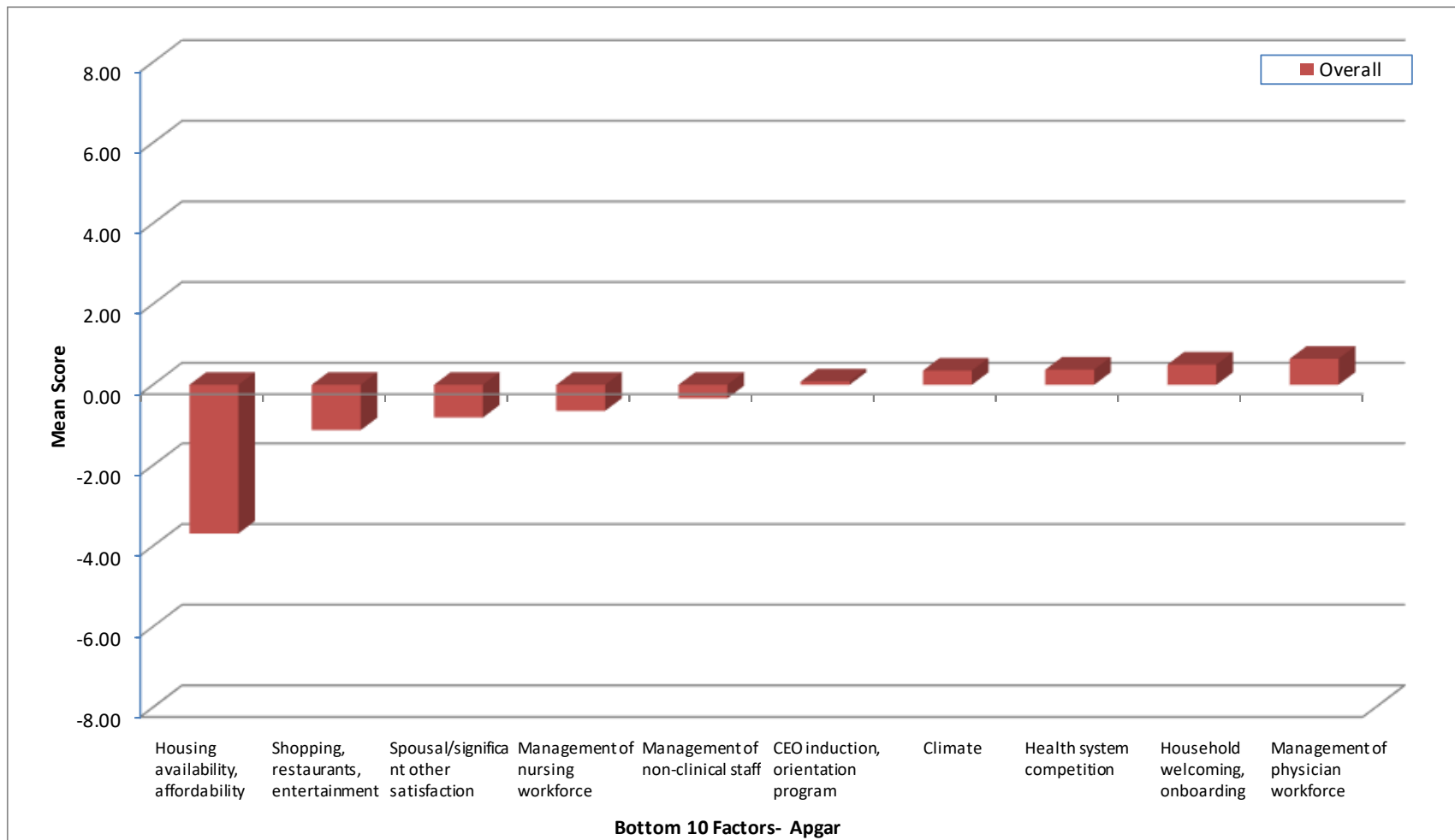


Top 10 CEO Community Apgar Mean Score





## Bottom 10 CEO Community Apgar Mean Score





# Questions/Comments for Discussion

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