

Comparing Hospital Performance: A more appropriate method using Peer Groups

Samuel Ogunbo¹, PhD,
Nikolas Matthes¹, MD, PhD, MPH,
Jen-Hao Cheng¹, PhD, and Carlos Alzola², MS.
¹Quality Indicator Project[®], Elkridge, MD
²Data Insights Inc., Vienna, VA



Agenda

- Quality Indicator Project® hospital profile
- Background
- The data
- Methods
- Results
- Conclusions



Quality Indicator Project® Hospital Profile

- Joint Commission ORYX vendor
- Participating hospitals predominantly in Northeast and Midwest
- More teaching hospitals
- More small hospitals
 - 55% of hospitals considered small (< 200 beds)
- Rural/urban distribution similar to American Hospital Association annual survey data



Background

- In 2007, QI Project rolled out a drill down tool that has advanced reporting capability
- Challenge: develop a strong, credible methodology for comparative reports and scorecards that hospitals can use instead of standard comparisons



Background Cont'd

Criteria for Peer Grouping

- Define groups of facilities showing similar performance levels, sharing a combination of characteristics (“your facility to like facilities”)
- Methodology based upon research on relevant factors that signify true statistical differences in performance
- Include commonly accepted characteristics so that hospitals can identify with their peers
- Establish few peer groups to ensure adequate hospital count in each group



The Data

- QI Project hospitals reporting on acute myocardial infarction, heart failure, surgical infection prevention and pneumonia National Hospital Quality Measures
- Study Period: 2005 - 2006
- All hospitals reporting on all measure sets
- Outcome measures excluded from analysis



Composite Scores

Calculated composite scores for four clinical conditions

Measure Set	Measures Included in Composite Score
AMI**	1-6, 7a, 8a
HF	1-4
PN*	1-4, 5a, 5b, 6a, 6b, 7
SCIP	1a, 2a, 3a

* *Excludes continuous measures*

** *Excludes continuous and risk-adjusted measures*



Methods

- Perform correlation analysis to identify important variables
- Identify characteristics of interest
 - Facility type (3 lvls), Environment (Rural/Urban), Critical Access, Staffed beds (3 lvls), Teaching status, Region
- Conduct ANOVA and assess importance of characteristics
- Conduct factor and cluster analyses
- Assess cluster differences using composite score
 - Performance by focus set



ANOVA Results (2005)

Significant Variables by Measure Set

SIP	<u>Teaching*</u> , Population, Staffed beds, <u>Region*</u> , <u>Facility type</u>
HF	Teaching, Population, Staffed beds, <u>Region*</u> , <u>Facility type</u>
AMI	Teaching, Population, <u>Staffed beds*</u> , <u>Region</u> , <u>Facility type</u>
PN	Teaching, Population, Staffed beds, <u>Region*</u> , <u>Facility type*</u>

*P < .05;

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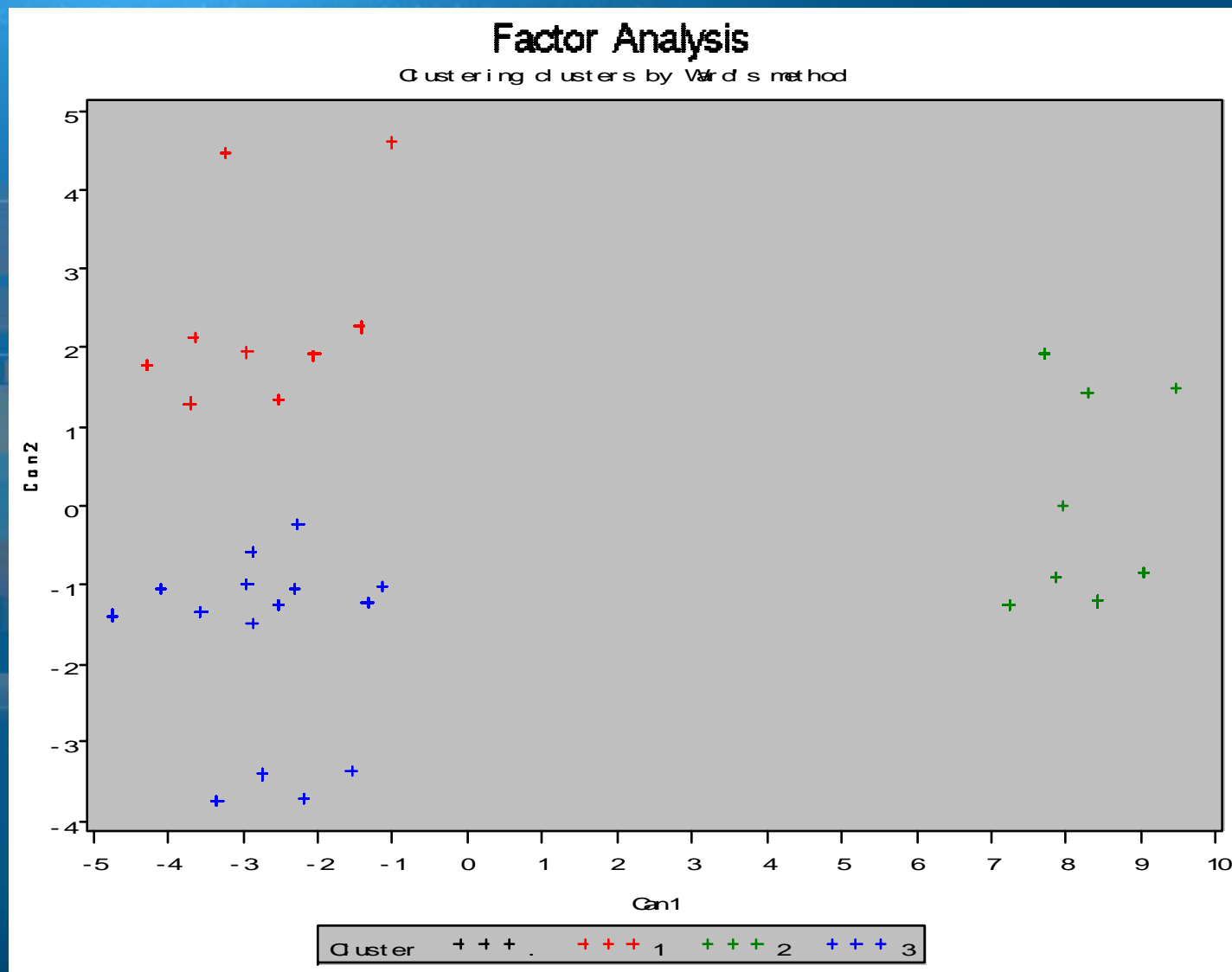


Factor / Cluster Analysis

- Criteria for factor analysis
 - Excluded Critical Access Hospitals
 - Staffed beds, facility type, region
- Four Factors retained
 - Retained factors explain 82.5 % of variation
 - **Factor1**: Number of beds
 - **Factor2**: Facility type
 - **Factor3**: Region
 - **Factor4**: Facility type
- Perform cluster analysis using Ward's method



Facility Clustering Using Wards Method



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Resulting Peer Groups

<u>Group</u>	<u>N</u>	<u>Predominant Characteristics</u>
1	177	200+ beds; Mostly for-profit
2	252	< 200 beds; Non-teaching
3	128	Midwest; Not-for-profit
4	50	Critical Access ; Not-for-profit



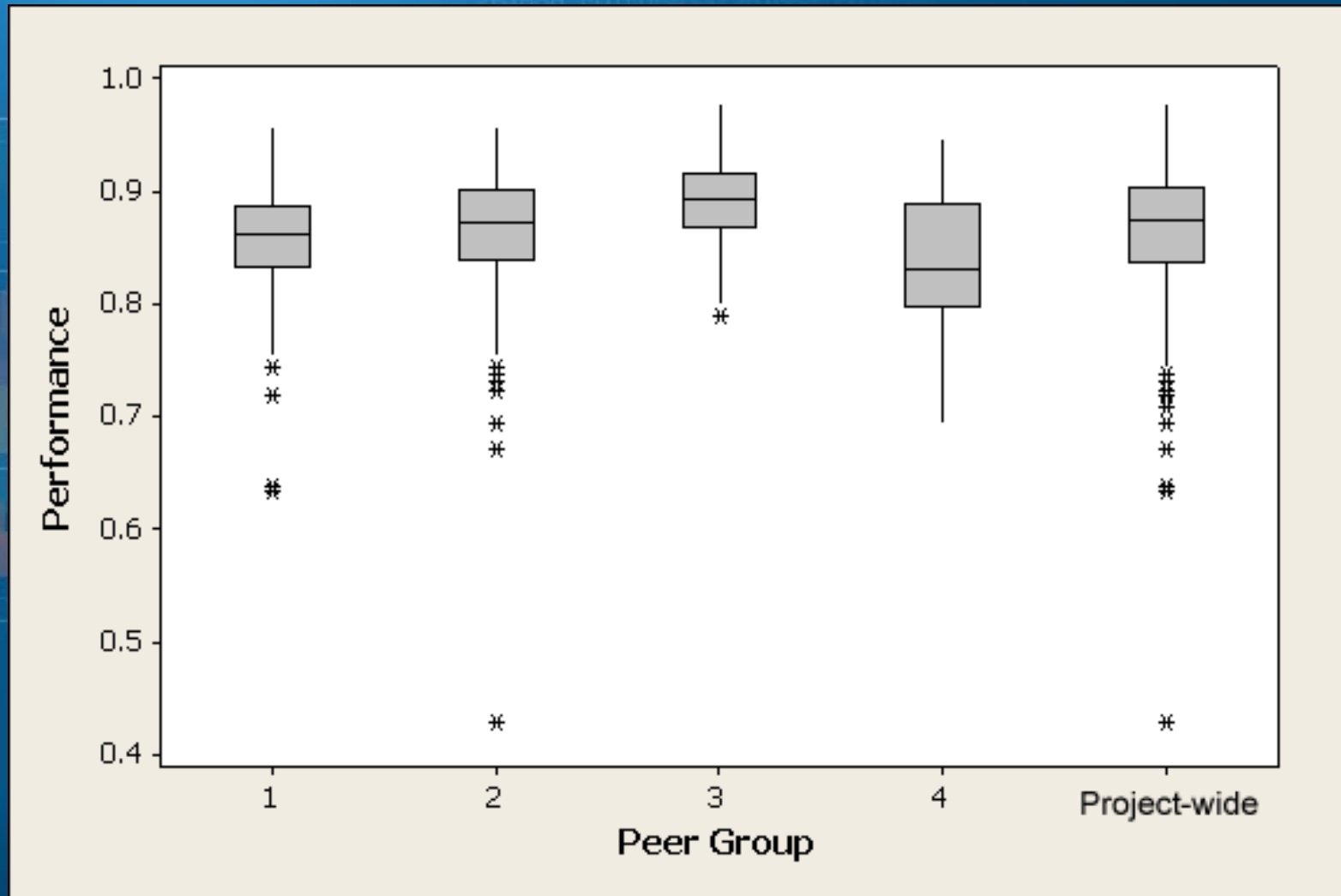
Measure Set Performances by Peer Group

<u>Group</u>	<u>AMI*</u>	<u>HF*</u>	<u>PN*</u>	<u>SIP*</u>
1	0.915 ^a	0.833 ^a	0.855 ^b	0.802 ^{ab}
2	0.884 ^b	0.794 ^b	0.865 ^b	0.782 ^b
3	0.915 ^a	0.848 ^a	0.892 ^a	0.826 ^a
4	0.911 ^a	0.79 ^b	0.833 ^c	0.779 ^b

** Means with the same letters not significantly different*



Distribution of PN Performance - 2006



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Conclusions

- Blanket comparisons to national or QI Project average provide only limited information and hide important variation between hospital performances
- All hospitals, but especially smaller ones, could benefit from grouping when the focus is on improvement and not on achieving 100% perfection score



Conclusions

- Research and evidence-based customized peer groupings are crucial for benchmarking and quality improvement
- If incentive systems ignore the particular challenges of hospitals characteristics, the benefits of any pay-for-performance schemes may be forever beyond the reach of some hospitals

