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Identifying Positive Deviant Local Health Departments in Maternal and Child Health

Poster Presentation

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Background

- LHDs are responsible for many MCH services, but have limited resources.
- Some communities have managed to achieve better than expected MCH outcomes compared to peers.

Purpose

To identify LHDs in communities that perform better than expected in MCH outcomes compared to peers

Methods

- 2009-2010 Public Health Activities and Services Tracking (PHAST) data for FL (n=67), WA (n=35) and NY [n=48(excluded NYC)]



- X = variables within LHD control including alternative providers in the community, clinician as an LHDs "top executive," and types of services the LHD provides
- Z = variables not under LHD control (Z) including population size, geography, and (arguably) the size of their budgets
- Y = outcomes (county-level rates of teen births, late or no prenatal care, infant mortality, % of low weight births)

Step 1: Regressed $Y=a+b1(Z)+e$

Step 2: Added in X variables $Y=a+b1(Z)+b2(X)+e$

Step 3: Likelihood ratio test to determine whether the internal control variables improved the explanatory power of the model.

- PDs = standardized residuals <-1

Results

Table 1: Descriptive Statistics for MCH Outcomes

Outcomes	FL		WA		NY	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Percent of all births with low birth weight	9.97	1.65	5.85	1.08	7.29	1.02
Infant Mortality Rate per 1,000	7.1	2.67	5.03	2.93	5.54	1.91
Percent of births that received no or late pre-natal care	4.46	1.86	4.49	1.97	4.02	1.44
Teen Birth Rate	46.57	15.75	36.5	20.83	28.66	9.41



Table 2: MCH expenditures – PDs and non-PDs

State	LHDs	PDs (%)	Total Maternal Child Health Expenditures*		WIC Expenditures		Family Planning Expenditures		Maternal, Infant, Child and Adolescent Health Expenditures	
			non-PDs	PDs	non-PDs	PDs	non-PDs	PDs	non-PDs	PDs
FL	Rural	18 (27%)	\$ 5.78-35.67 (19.68)	\$ 7.64-33.26 (22.71)	\$ 0-21.20 (1.91)	\$ 0-0.89 (0.22)	\$ 4.49-15.42 (9.35)	\$ 2.38-16.03 (8.49)	\$ 0.01-23.60 (8.42)	\$ 4.48-22.41 (14.00)
	Micro	10 (15%)	\$ 8.56-46.36 (20.80)	\$ 28.05-36.26 (32.98)	\$ 0.02-11.45 (4.80)	\$ 0.02-11.05 (5.52)	\$ 4.01-15.84 (6.27)	\$ 9.12-20.72 (14.13)	\$ 0.06-30.82 (9.73)	\$ 10.57-16.09 (13.33)
	Metro	39 (58%)	\$ 7.26-27.69 (15.49)	\$ 7.49-56.38 (16.93)	\$ 0-11.89 (5.40)	\$ 0.02-15.01 (5.15)	\$ 1.22-9.59 (4.06)	\$ 1.97-10.87 (4.33)	\$ 0.26-16.85 (6.02)	\$ 0.32-32.04 (7.44)
NY	Rural	9 (19%)	\$ 0.25-14.06 (5.77)	\$ 1.18-16.61 (7.94)	\$ 0-8.70 (1.76)	\$ 0.26-7.48 (2.42)	\$ 0-13.87 (2.54)	\$ 0.03-8.77 (4.46)	\$ 0.10-6.13 (1.47)	\$ 0.04-3.03 (1.06)
	Micro	13 (27%)	\$ 0.30-12.90 (2.56)	\$ 1.38-20.55 (9.92)	\$ 0.01-8.05 (1.40)	\$ 0.12-10.12 (3.28)	\$ 0-6.52 (0.43)	\$ 0.04-17.37 (4.75)	\$ 0.08-2.41 (0.72)	\$ 0.24-3.62 (1.89)
	Metro	26 (54%)	\$ 0.02-13.70 (4.81)	\$ 1.07-20.39 (7.50)	\$ 0-7.77 (2.28)	\$ 0-6.54 (3.71)	\$ 0-3.11 (0.30)	\$ 0-3.18 (0.62)	\$ 0-8.31 (2.22)	\$ 0.86-11.14 (3.17)
WA	Rural	11 (31%)	\$ 3.44-32.20 (15.16)	\$ 17.17-25.95 (21.22)	\$ 0-8.68 (3.96)	\$ 4.98-8.97 (7.31)	\$ 0-17.86 (3.84)	\$ 0-10.27 (5.55)	\$ 2.36-18.83 (7.37)	\$ 3.14-11.81 (8.36)
	Micro	11 (31%)	\$ 1.21-9.40 (5.77)	\$ 2.36-6.21 (4.48)	\$ 0-5.33 (2.90)	\$ 0-3.43 (1.55)	\$ 0-0.64 (0.08)	\$ 0-0.01 (0)	\$ 1.02-4.67 (2.79)	\$ 1.09-5.11 (2.92)
	Metro	13 (37%)	\$ 0.82-27.52 (9.30)	\$ 0.73-11.71 (7.32)	\$ 0-4.71 (1.78)	\$ 0-4.98 (2.76)	\$ 0-10.09 (2.15)	\$ 0-2.87 (1.14)	\$ 0.82-18.78 (5.36)	\$ 0.73-5.36 (3.42)
Combined	Rural	38 (25%)	\$ 0.25-35.67 (15.44)	\$ 1.18-33.21 (17.68)	\$ 0-21.20 (2.56)	\$ 0-8.97 (2.34)	\$ 0-17.86 (6.18)	\$ 0-16.03 (6.61)	\$ 0.01-23.60 (6.71)	\$ 0.04-22.41 (8.73)
	Micro	34 (23%)	\$ 0.30-46.36 (9.72)	\$ 1.38-35.26 (13.05)	\$ 0-11.45 (3.00)	\$ 0-11.05 (3.21)	\$ 0-15.84 (2.31)	\$ 0-20.72 (5.23)	\$ 0.06-30.82 (4.40)	\$ 0.23-16.09 (4.62)
	Metro	78 (52%)	\$ 0.17-27.69 (10.50)	\$ 0.73-56.37 (13.00)	\$ 0-11.87 (3.64)	\$ 0-15.01 (4.40)	\$ 0-10.09 (2.36)	\$ 0-10.87 (2.86)	\$ 0.01-18.78 (4.50)	\$ 0.32-32.04 (5.75)

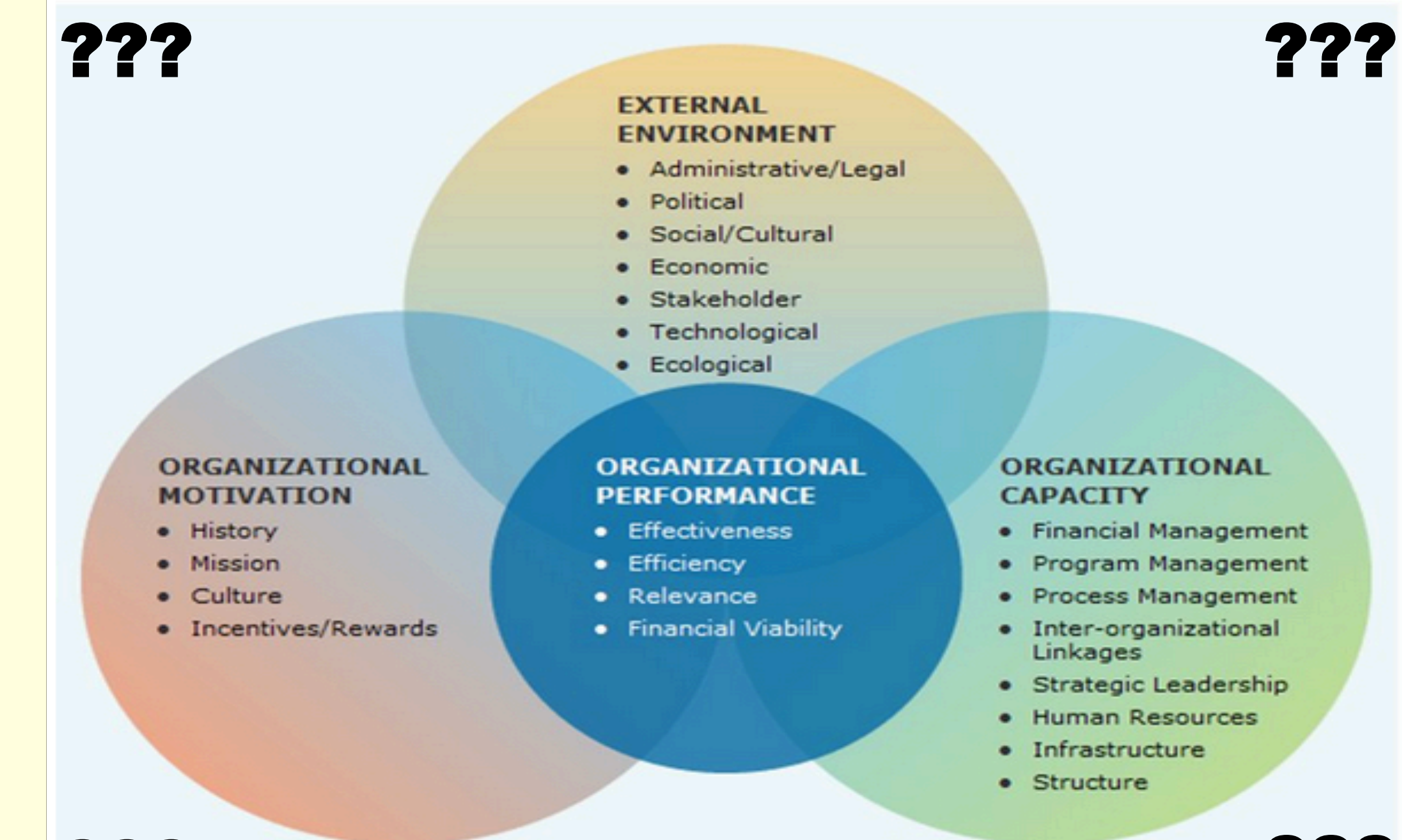
lower expenditures by positive deviants

Results

- 50 PD LHDs [WA=10(29%); FL=24(36%); NY=16(33%)]
- 45 of 50 LHDs (90%) had better than expected MCH outcomes over 2 years
- 25 LHDs (50%) had 2 or more exceptional outcomes in a study year (Table 1)
- PD LHDs varied by context in proportion to all LHDs
 - (metropolitan=26; micropolitan=10; rural=14)
- Range of expenditures varied similarly in all LHDs and PD LHDs (Table 2)

Implications

- LHD factors other than financial resources have influenced these MCH outcomes
- Additional research is needed to understand what makes these LHDs PDs



Source: Universalia Institutional and Organizational Assessment Model (IOA Model)

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