Trends in Maternal and Child Health Services and Outcomes During the Economic Recession in NC

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Dorothy Cilenti, Rebecca Wells, Hye-Chung Kum
University of North Carolina at Chapel Hill

UNC
GILLINGS SCHOOL OF
GLOBAL PUBLIC HEALTH

THE NORTH CAROLINA
Institute *for* Public Health

Study Team Members

- Rebecca Wells, PhD
- Dorothy Cilenti, DrPH
- Hye-Chung Kum, PhD
- Ravi Goyal, MS
- Tim Whitmire, PhD
- Marisa Domino, PhD
- Marianne Hillemeier, PhD

You've seen the headlines

Recession has hospitals shedding services, staff

News and Observer April 27, 2009

Health woes persist in Eastern N.C.

News and Observer April 30, 2010

Strained Medicaid in for cuts

News and Observer October 14, 2009

Poverty nears 1960s levels

News and Observer September 12, 2010

More in North Carolina trying to get by with less

News and Observer October 3, 2010
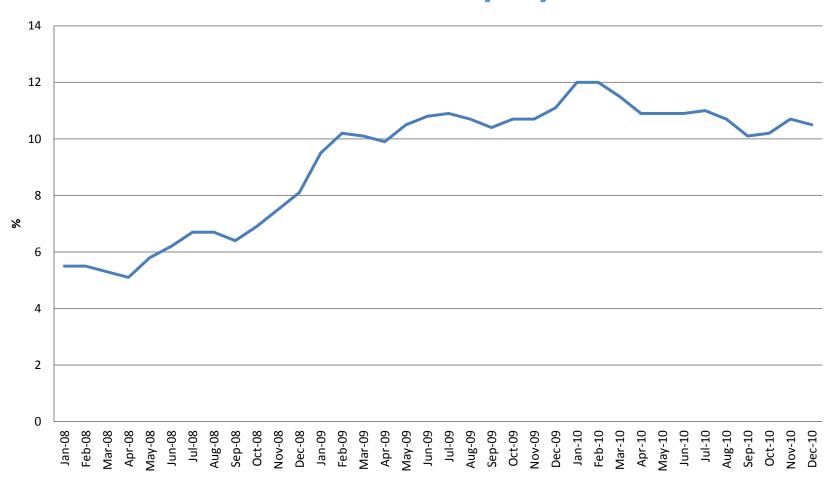
Preserving key services at DHHS

News and Observer November 27, 2009

Context

- 3/2008 Economic recession begins
- 10/2009 Medicaid reimbursement for care coordination for pregnant women cut 19%
- 3/2011 Pregnancy medical home model initiated

NC 2008-2010 unemployment rates

Question

What happened to health care access for low income pregnant women as North Carolina's recession deepened?

Methods

- Random sample ~8,000 women
- Delivered between 10/1/2008-9/30/2010
- Covered through Medicaid
- Data from Medicaid eligibility files, claims, WIC files, and birth certificates

Descriptive Statistics
Maternal Attributes

Characteristic	Year 1 (10/2008-9/2009)	Year 2 (10/2009-9/2010)
Maternal age	24.7 years	24.8 years
Parity < 1*	41%	44%
African American	33%	33%
Hispanic	22%	21%

*Significant at p < .01

Descriptive Statistics
Source of Payment for Deliveries

	Other payor	Medicaid	Total	Percent
Year 1	63,503	64,882	128,385	51%
Year 2	59,948	62,594	122,542	51%
Total	123,451	127,476	250,927	51%

	Medicaid	Medicaid for Preg Women	Emergency Medicaid	Total
Year 1	17,521 (27%)	35,051 (54%)	12310 (19%)	64,882
Year 2	17,164 (27%)	34,344 (55%)	11086 (18%)	62,594
Total	34,685 (27%)	69,395 (54%)	23396 (18%)	127,476

Percent Pregnancy Covered

	Medicaid	Pregnancy Medicaid
Year 1 (10/2008 - 9/2009)	20%	36%
Year 2 (10/2009 - 9/2010)	25%	42%
Total	22%	39%

Significant at p < .001

Multiple Regression

- Logistic for 1/0 outcomes; negative binomial for count variables

- Month of recession measured through month of baby's birth

- Controlling for whether or not mother was enrolled in full Medicaid, Pregnancy or Family Planning Waiver, maternal age, new mother, African American, or Hispanic

Findings: Service Utilization, Overall

	LHD Care n=7,911		Family Planning 3 mos postpartum n=7,911	
	OR	p-value	OR	p-value
Month of birth	**0.991**	**0.0139**	**0.99**	**0.0069**
Full Medicaid	1.643	<.0001	1.366	<.0001
Maternal age	0.927	<.0001	0.982	0.0006
Parity < 1	1.585	<.0001	0.827	0.0009
African American	1.206	0.001	0.908	0.0711
Hispanic	0.857	0.018	0.151	<.0001

Findings: Service Utilization subgroups

African American	LHD Care n=2,577		Family Planning 3 mos postpartum n=2,577	
	OR	p-value	OR	p-value
Month of birth	**0.983**	**0.0089**	**0.994**	**0.3279**
Full Medicaid	1.468	<.0001	1.178	0.0536
Maternal age	0.92	<.0001	0.994	0.4902
Parity < 1	2.383	<.0001	0.862	0.1137

White	LHD Care n=3,617		Family Planning 3 mos postpartum n=3,617	
	OR	p-value	OR	p-value
Month of birth	**0.988**	**0.0289**	**0.987**	**0.0117**
Full Medicaid	1.714	<.0001	1.287	0.0003
Maternal age	0.909	<.0001	0.978	0.0014
Parity < 1	1.538	<.0001	0.737	<.0001

Findings: Count of OB Visits

	1st Trimester n=5,098		2nd Trimester n=6,488		3rd Trimester n=6,953		Postpartum n=7,911	
	Estimate	p-value	Estimate	p-value	Estimate	p-value	Estimate	p-value
Month of birth	**-0.023**	**<.0001**	**-0.014**	**<.0001**	**-0.012**	**<.0001**	**-0.036**	**<.0001**
Full Medicaid	0.390	<.0001	0.243	<.0001	0.221	<.0001	0.728	<.0001
Maternal age	-0.003	0.348	-0.004	0.070	-0.008	0.000	-0.020	<.0001
Parity < 1	0.009	0.768	0.009	0.703	0.034	0.167	0.008	0.755
African American	-0.061	0.026	0.014	0.531	0.005	0.815	0.101	<.0001
Hispanic	-0.286	<.0001	-0.498	<.0001	-0.520	<.0001	-0.888	<.0001

Findings: Count of Mental Health and Substance Abuse Visits

	Mental Health (n=1,375)		Substance Abuse (n=589)	
Overall	Estimate	p-value	Estimate	p-value
Month of birth	**0.017**	**0.085**	**0.036**	**0.072**
Full Medicaid	0.738	<.0001	0.311	0.295
Maternal depression	0.698	<.0001	0.362	0.272
Maternal bipolar	1.070	<.0001	0.567	0.107
Maternal schizophrenic	0.789	0.054	0.146	0.865
Maternal anxiety	-0.254	0.062	-0.414	0.236
Maternal trauma	0.913	<.0001	0.123	0.798
Maternal substance abuse	0.725	<.0001	0.080	0.021
Maternal age	0.015	0.194	-0.532	0.082
Parity < 1	0.337	0.025	-0.274	0.310
African American	0.448	0.003	-1.877	0.082
Hispanic	-0.280	0.405	0.036	0.072

Findings: Count of Mental Health and Substance Abuse Visits

	Mental Health (n=58)		Substance Abuse (n=11)	
Hispanic	Estimate	p-value	Estimate	p-value
Month of birth	**0.1434**	**0.0747**	**-1.2769**	**0.4744**
Full Medicaid	2.0981	0.0977	21.1217	0.5321
Maternal depression	2.5397	0.0844	-10.4475	0.8009
Maternal bipolar	0.8571	0.4632	0	--
Maternal schizophrenic	0	--	0	--
Maternal anxiety	1.4173	0.1569	3.4301	0.9302
Maternal trauma	2.6274	0.013	0	--
Maternal substance abuse	2.608	0.2516	--	--
Maternal age	0.098	0.1554	0.4834	0.61
Parity < 1	0.4461	0.581	17.6225	0.4772

Findings: Count of Mental Health and Substance Abuse Visits

White	Mental Health (n=912)		Substance Abuse (n=380)	
	Estimate	p-value	Estimate	p-value
Month of birth	**0.022**	**0.084**	**0.044**	**0.100**
Full Medicaid	0.529	0.006	0.454	0.215
Maternal depression	0.569	0.004	0.140	0.758
Maternal bipolar	1.093	<.0001	0.421	0.381
Maternal schizophrenic	-0.008	0.991	0.098	0.930
Maternal anxiety	-0.294	0.089	-0.227	0.598
Maternal trauma	0.844	0.002	-0.049	0.941
Maternal substance abuse	0.945	<.0001	0.118	0.012
Maternal age	0.037	0.021	-0.556	0.209
Parity < 1	0.445	0.020	0.044	0.100

Findings: Maternal Outcomes

Overall	Maternal Smoking (n=4,499)		Excessive Weight Gain (n=7,136)	
	OR	p-value	OR	p-value
Month of birth	**0.99**	**0.2815**	**0.992**	**0.029**
Full Medicaid	1.775	<.0001	1.056	0.3429
Maternal age	1.005	0.5629	1.014	0.0132
Parity < 1	0.673	<.0001	1.771	<.0001
African American	0.278	<.0001	1.088	0.1347
Hispanic	0.077	<.0001	0.523	<.0001

White	Maternal Smoking (n=2,262)		Weight Gain (n=3,548)	
	OR	p-value	OR	p-value
Month of birth	**0.99**	**0.3723**	**0.988**	**0.0286**
Full Medicaid	1.716	<.0001	1.047	0.5659
Maternal age	0.993	0.4701	1.011	0.169
Parity < 1	0.685	0.0006	1.835	<.0001

Findings: Infant Outcomes

Overall	Preterm Delivery (n=7,136)		Low Birthweight (n=7,136)	
	OR	p-value	OR	p-value
Month of birth	**0.999**	**0.887**	**0.995**	**0.450**
Full Medicaid	1.228	0.033	1.406	0.001
Maternal age	1.016	0.070	1.021	0.021
Parity < 1	0.998	0.981	1.237	0.046
African American	1.205	0.048	1.499	<.0001
Hispanic	0.763	0.071	0.680	0.024

Hispanic	Preterm Delivery (n=1,039)		Low Birthweight (n=1,039)	
	OR	p-value	OR	p-value
Month of birth	**0.962**	**0.061**	**0.944**	**0.019**
Full Medicaid	1.056	0.906	1.925	0.131
Maternal age	1.058	0.018	1.051	0.074
Parity < 1	1.550	0.178	2.089	0.044

Conclusions

- Overall: Medicaid paid for significantly more deliveries over time
- Medicaid covered a greater percentage of the pregnancy period
- Service utilization stayed about the same over time, with the following exceptions:
  - Number of OB visits decreased over time for all three trimesters and postpartum
  - Service utilization at local health departments declined somewhat, particularly among Whites and African Americans
  - Family planning service utilization during the first 3 months postpartum declined, especially for Whites

Conclusions

- Outcomes
  - Maternal smoking: no significant changes
  - Maternal weight gain: women in general, especially white women, were slightly less likely to gain excessive amount of weight
  - Preterm /low birth weight: no significant changes except for Hispanic women who were less likely to deliver a baby at low birth weight over time. There is weak evidence indicating they were less likely to deliver preterm babies.

Limitations

- Excludes any services not paid through Medicaid

- May fail to account for other rival hypotheses (e.g., changing attitudes)

- There were some major changes to the birth certificate data in 2010, which resulted in not being able to control for some variables like mother's education and prenatal care indicators

Implications

- Broadening the safety net for low-income pregnant women may have resulted in some respects less access for insured women, perhaps as a result of less active outreach, busier staff, longer wait times, and bottlenecks in service delivery

- Preparing to provide health services to increasing numbers of individuals under the Affordable Care Act will require meaningful investment in workforce and health care system infrastructure