FALL DPAC FULL MEMBERSHIP MEETING

DIABETES AND MEDICAID: WHO, WHAT, WHEN, WHERE, WHY, AND HOW

HCM BYRD, EM GARCIA, AND R WAHL

LIFECOURSE EPIDEMIOLOGY AND GENOMICS DIVISION (LEGD)

DIVISION OF CHRONIC DISEASE AND INJURY CONTROL: DIABETES PREVENTION AND CONTROL PROGRAM

Michigan Department of Community Health

MDCH

Rick Snyder, Governor
Nick Lyon, Director

WHO, WHAT, AND WHEN

Who Medicaid Beneficiaries with diabetes insured by Michigan Medicaid

What

- Diabetes Surveillance
- Adults 18-64 years

When 2007-2012

What

- Diabetes in Pregnancy
- Females of Reproductive Years (15-44 years)

When 2008-2013

WHY?

Socio-economically vulnerable population in Michigan

Most valuable, robust data

Disproportionate health care utilization and access

- Demographic
- Geographic

Data-driven decisions - interventions and messaging

Messaging - Stakeholders, legislators, and grantors

We have the opportunity to measure, assess, and improve health care indicators for Michiganders with diabetes.

KEY STRENGTHS

- Non-financial sources of disparities
- No self-report bias
- Geographic regions below the state level
- Special populations
- Comorbidities and medication adherence issues

WHAT - APPLICATIONS

Comprehensive Tables and Charts

- Demographics of Small Populations
- Indicators by Region
  - County, Census Tract, City…
  - Congressional Districts
  - Health Department Jurisdictions
- Other Indicators
  - Utilization Profiles (e.g., Emergency Department Super Utilizers)

Maps – Spatial Analysis

- Access to care (Network Analysis)
  - DSME sites
  - Health professional practices
  - Emergency Departments
- Exploratory –
  - Indicators with environmental/structural factors

HOW – IN GENERAL,

Source: Michigan Medicaid Data Warehouse

Enrollment and paid claim, encounter, and prescription data

Good health analyst with claims experience (Erika G.)

- Extract data
- Operationalize indicators

Definitions for everything

- Health Industry accepted specifications – e.g., HEDIS®
- Demographics and Geography from
  - US Census
  - Office of Management and Budget

Your Erika creates analytic dataset, which can be used for analysis.

WHAT - CURRENT PROJECTS

Surveillance System, ver. 1

- Preventive Care
- Diabetes Self-Management Education (DSME)
- Acute Care and Emergency Department

Diabetes in Pregnancy

- Pre-existing and Gestational Diabetes Mellitus
- 20 Indicators

Influenza Vaccination

- Demographic and Geographic Location
- Missed Opportunities

Preventable Hospitalizations

- Agency for Healthcare Research and Policy (AHRQ)
- Thirteen Indicators

WHAT –SURVEILLANCE SYSTEM VERSION 1

Starting point!

Report on preventive care, diabetes education, hospitalization, and emergency department utilization over time

Assist local and state health departments in evaluation and program planning

HOW?

HEDIS®

Medicaid population

- 18-64 years
- Continuous coverage for calendar year
- No other insurance

Diabetes cases based on

- Medicaid population with IP, ED, OP/Non-acute, and/or Pharmacy history
- ICD-9 CM codes (250.xx, 357.2, 362.0, 366.41, 648.0)

IN 2012, DIABETES AFFECTED 1 IN 10 ADULTS INSURED BY MEDICAID, AND 1 IN 5 ADULTS 45-64 YEARS.

Indicators	'07	'12	Percent Change Between '07 and '12
Among Adult Population Insured Michigan Medicaid	322,079	401,589	
Diabetes Prevalence	9.1%	9.6%	5.3% ↑
Among Adult Diabetes Population Insured by Medicaid	29,386	38,549	
Had At Least One Eye Exam	87.7%	85.0%	-3.1% ↔
Had At Least One DSME Session	5.1%	4.7%	-6.3% ↓
Had At Least Two Office Visits	56.7%	53.1%	-6.3% ↓
Inpatient Hospitalization Rate, Diabetes Listed as Any Diagnosis (per 1,000)	337.7	349.9	3.6% ↔
ED Visit Rate, Diabetes Listed as Any Diagnosis (per 100)	81.7	117.2	43.6% ↑
Five or More ED Visits, Diabetes Listed as Any Diagnosis	3.6%	5.7%	58.3% ↑

1 in 20 assessed

25-64 yrs.

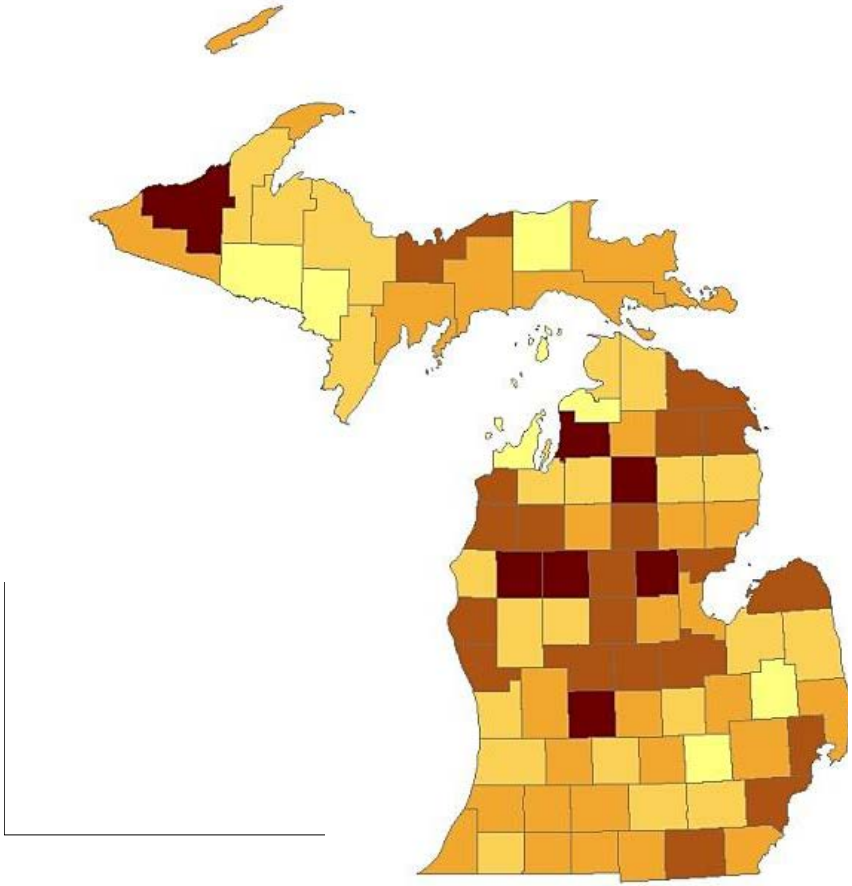
Highest African-Am

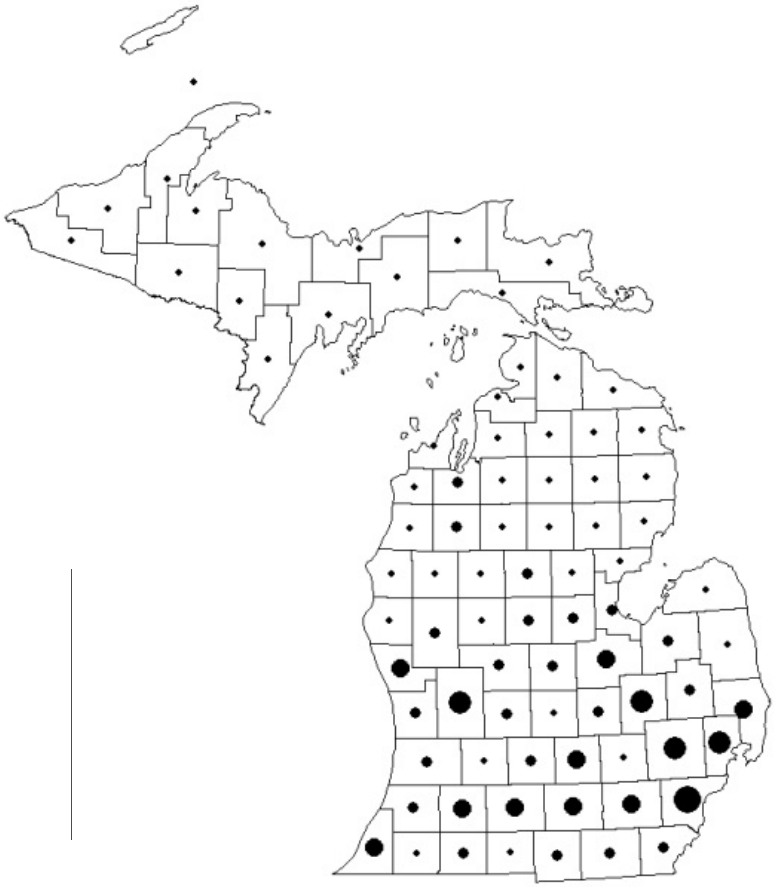
Women of Reproductive Years

ED – Emergency Department

Source: Michigan Medicaid Data Warehouse, 2007 and 2012

COUNTY PERCENTAGE AND NUMBER OF ADULTS WITH DIABETES (18-64 YRS.), MICHIGAN MEDICAID, 2012

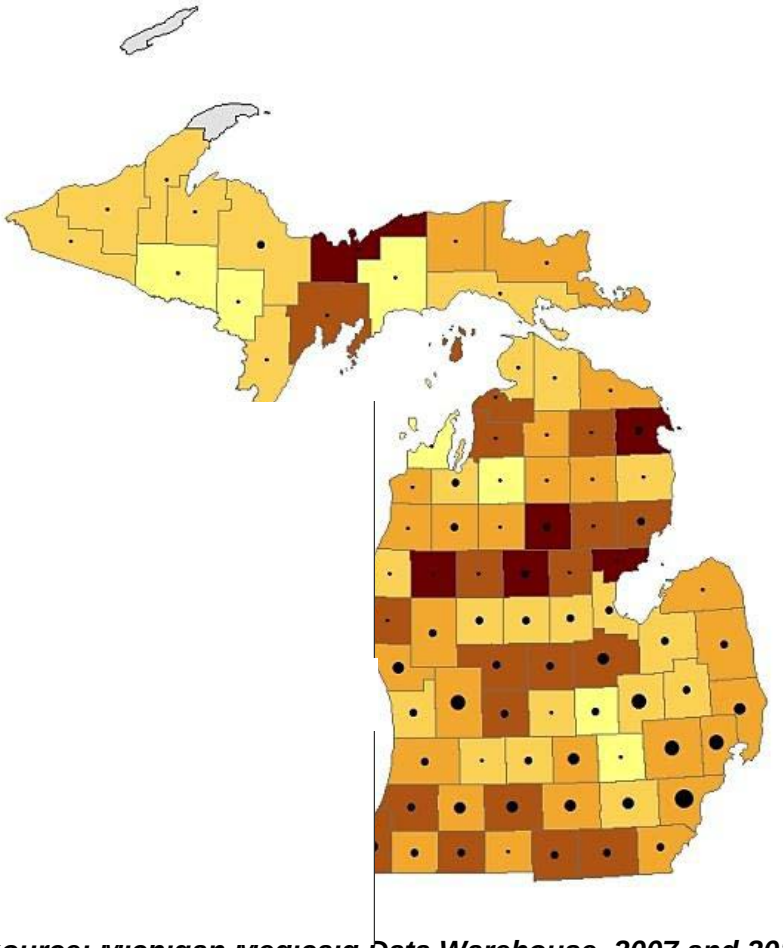




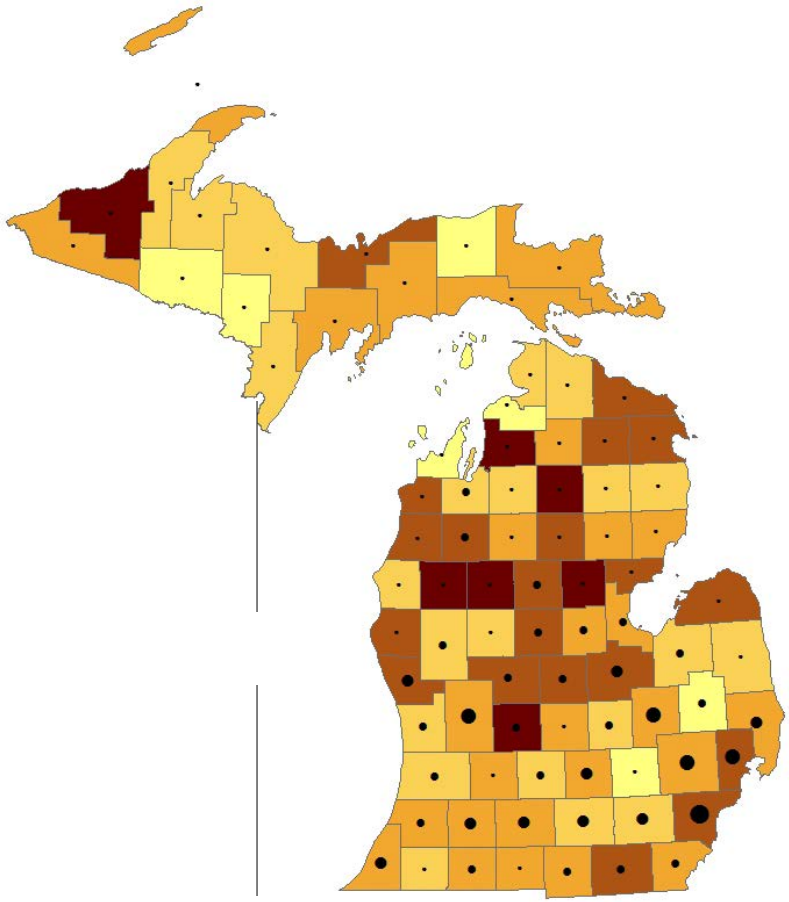
Source: Michigan Medicaid Data Warehouse, 2012

COUNTY PERCENTAGE AND NUMBER OF ADULTS WITH DIABETES (18-64 YRS.), MICHIGAN MEDICAID

2007



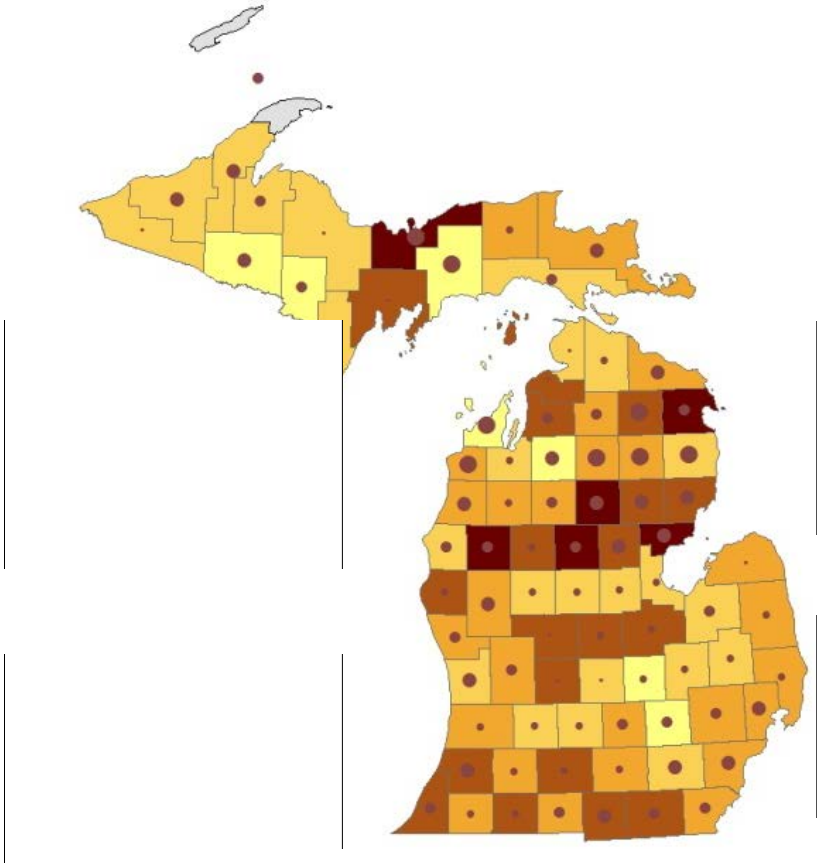
2012



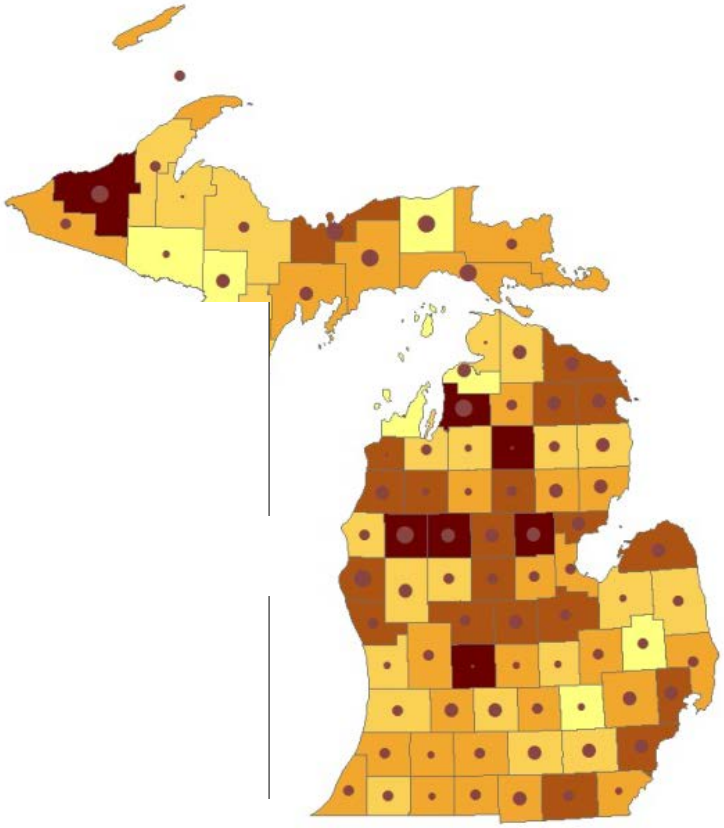
Source: Michigan Medicaid Data Warehouse, 2007 and 2012

COUNTY
PERCENTAGE OF ADULTS WITH DIABETES 18-64 YEARS AND THOSE 45 YEARS AND OVER, MICHIGAN MEDICAID 2007 AND 2012

2007



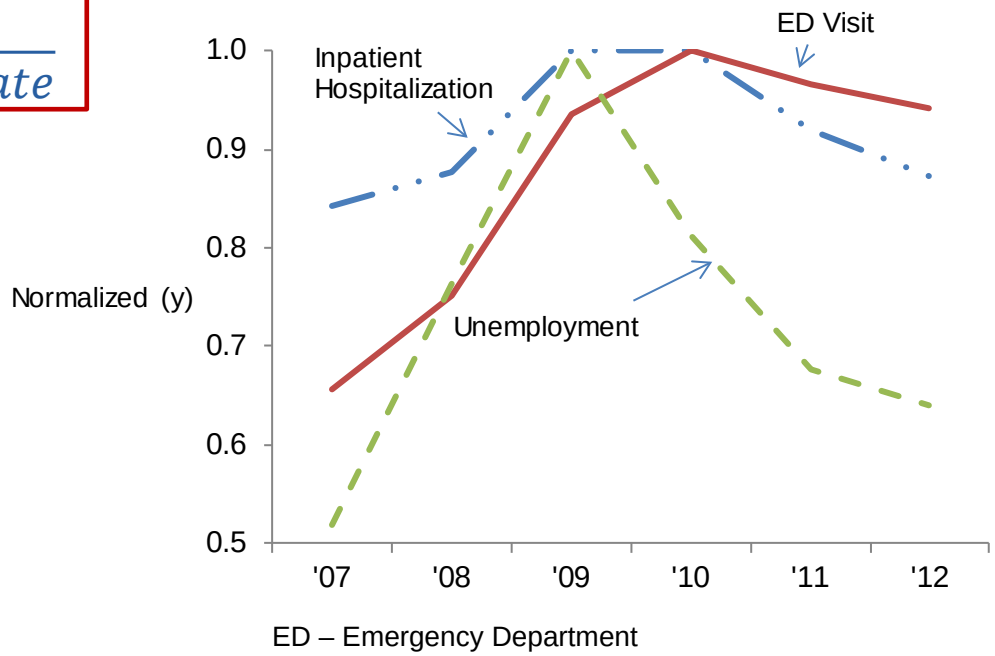
2012



Source: Michigan Medicaid Data Warehouse, 2007 and 2012

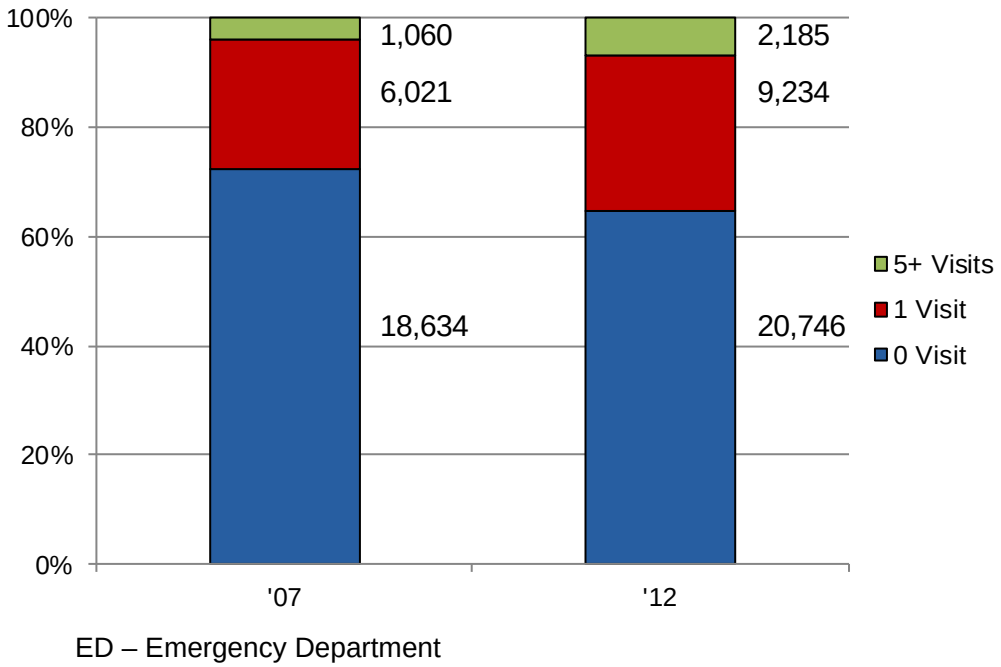
INDICATORS CAN BE TRACKED AND COMPARED OVER TIME. IN THIS CASE, THERE IS ATTENTION TO WHAT IS HAPPENING IN THE MICHIGAN ECONOMIC ENVIRONMENT.

$$y = \frac{Rate}{Maximum\ Rate}$$



Source: Michigan Medicaid Data Warehouse, 2007-2012, and US Department of Labor, Bureau of Labor Statistics, 2007 -2012

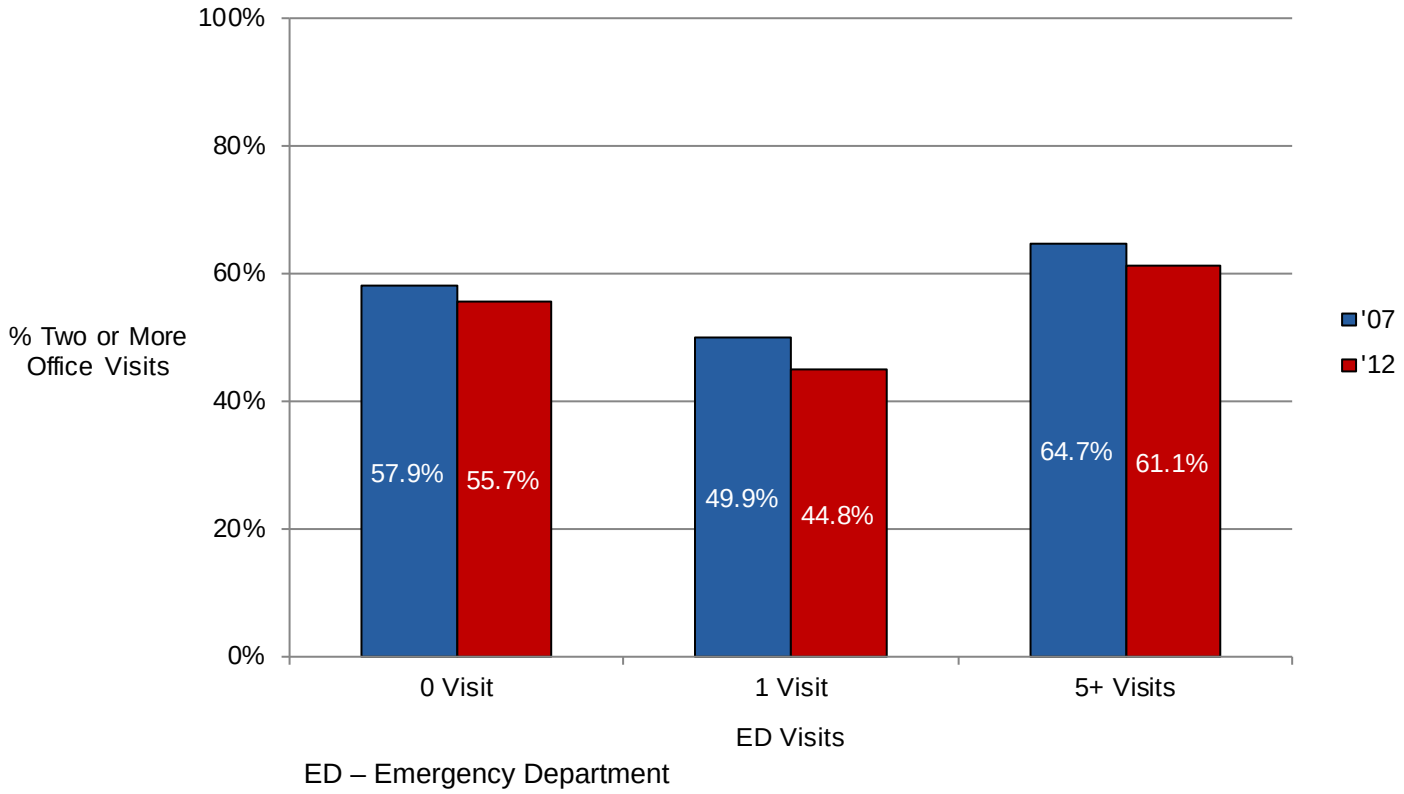
PERCENTAGE OF ADULTS WITH DIABETES (18-64 YRS.) WH0 HAD AT LEAST FIVE ED VISITS PER YEAR INCREASED BETWEEN 2007 AND 2012



ED – Emergency Department

Source: Michigan Medicaid Data Warehouse, 2007 and 2012

PREVALENCE OF TWO OR MORE OFFICE VISITS PER YEAR AMONG ADULTS WITH DIABETES (18-64 YRS.), MICHIGAN MEDICAID, 2007 AND 2012



Source: Michigan Medicaid Data Warehouse, 2007 and 2012

WHERE - FUTURE DIRECTION

Surveillance System, ver. 2

- Preventive care practices, hospital readmissions, ED reliance and medication adherence
- Experts on definitions, e.g., CKD, comprehensive eye examination, and obesity.

WHAT – DIABETES IN PREGNANCY

- Impact of diabetes among mothers
- Focus on complications

HOW?

HEDIS®

Medicaid population

- Females, 15-44 years

Preexisting diabetes cases (PDM) based on

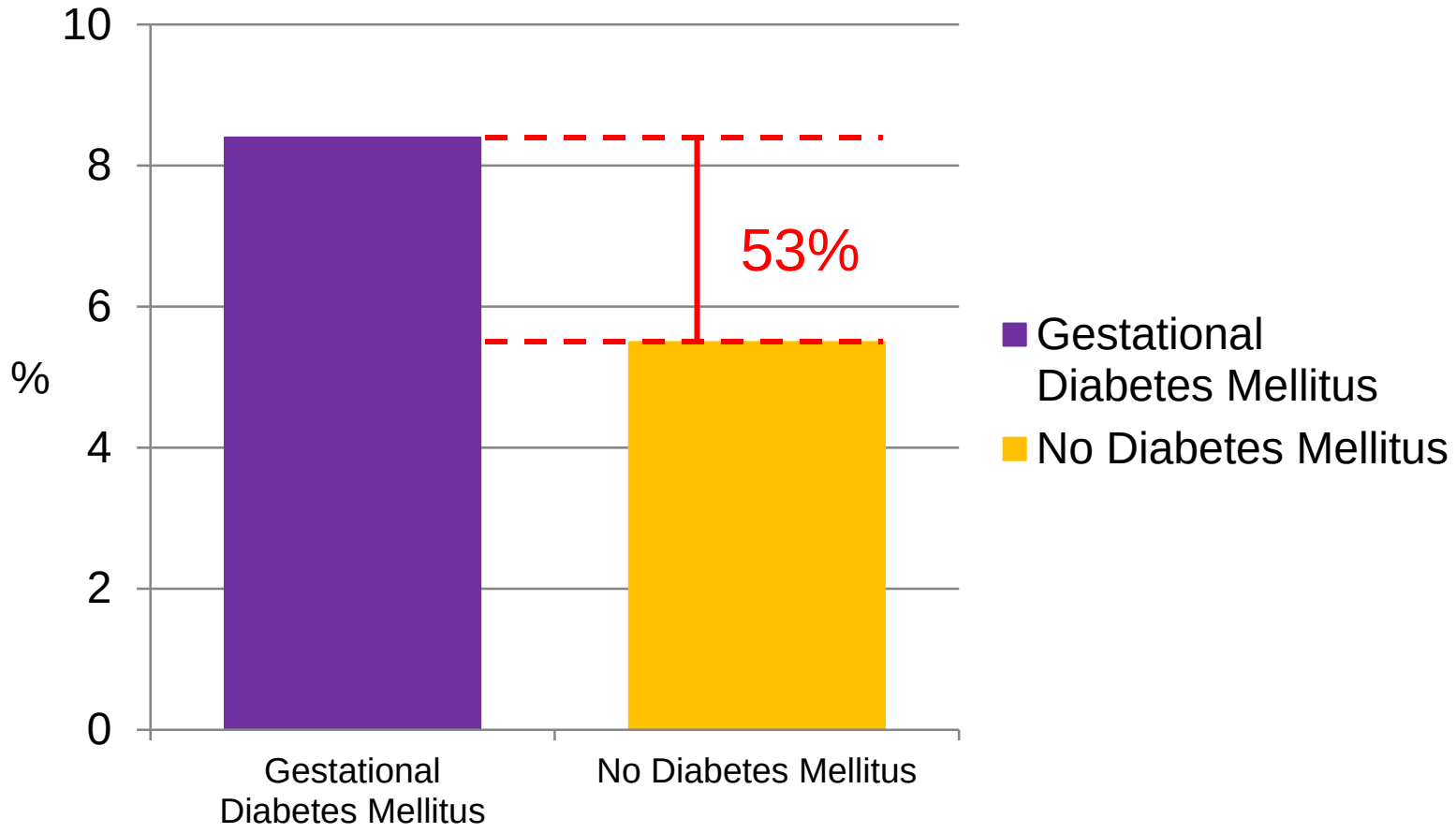
- Any mention of ICD-9-CM=250 on the labor and delivery claim

Gestational Diabetes Mellitus cases (GDM) based on

- Any mention of ICD-9-CM= 648.8 on the labor and delivery claim

WHAT PERCENTAGE OF MOTHERS WERE UNINSURED AT DELIVERY?

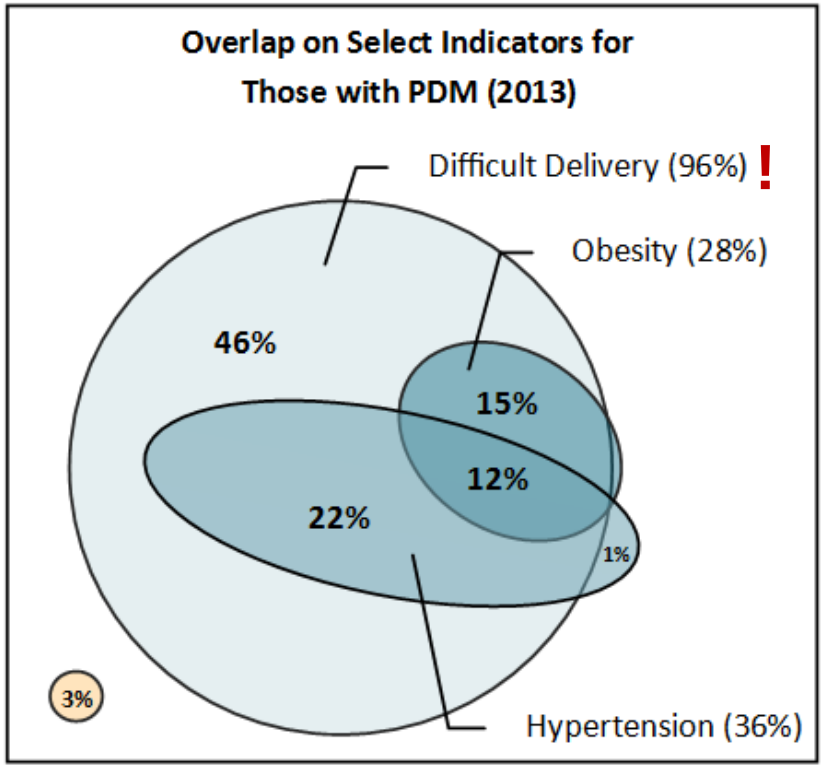
Deliveries to women cover through Emergency Services Only (2013)



Emergency Services Only – Low-income and uninsured

Source: Michigan Medicaid Data Warehouse, 2013

IT IS POSSIBLE TO EXAMINE COMORBIDITIES.



PDM – Pre-existing diabetes; Prevalences may not equal total due to rounding

Source: Michigan Medicaid Data Warehouse, 2013

MOTHERS WITH DIABETES DURING PREGNANCY TYPICALLY HAVE MORE COMPLICATED DELIVERIES AND LONGER HOSPITAL STAYS.

	PDM	GDM	No DM
Among Women with Live Births	484	2608	50808
Prevalence	0.9	4.8	94.3
Delivery Type			
Cesarean Section (%)	64.3	41.7	30.3
Complicated Vaginal Delivery (%)	31.4	12.7	9.7
Uncomplicated Vaginal Delivery (%)	4.3	45.6	59.9
Hospital Variables			
Average Length of Stay (days)	3.9	2.9	2.4
Intensive/Cardiac Care Unit (%)	2.3	0.9	0.9
Medicaid: Emergency Services (%)	4.5	8.4	5.5
Comorbidities Indicated at Time of Delivery			
Obesity (%)	27.7	16.6	5.0
Hypertension (%)	35.5	10.6	6.8
Mental Health Issue (%)	17.6	10.8	9.5
Previous Cesarean Section (%)	34.1	17.5	15.6
Maternal Indicators			
Anemia During Pregnancy (%)	16.9	13.4	12.7
Infection (%)	13.6	6.5	6.6
Trauma to Perineum and Vulva (%)	13.0	19.1	27.7
Polyhydramnios or Other Amniotic Cavity Problems (%)	16.7	9.9	10.0

1.4X 2X

1.3X ~3X

PDM – Pre-existing diabetes; GDM – Gestational Diabetes Mellitus; DM – Diabetes Mellitus

Source: Michigan Medicaid Data Warehouse, 2013

WHERE - FUTURE DIRECTION

Diabetes in Pregnancy and Mental Health

- Medication use and adherence

Adult Michiganders at risk for diabetes (GDM)

Birth Outcomes: Link mothers to infants using Birth Certificates

Diabetes and Mental Health

- Medication use and adherence

Adult Michiganders at risk for diabetes (Hypertension)

CHALLENGES

Paid claim and encounter data cannot identify beneficiaries with diabetes who do not have utilization meeting definition criteria.

Services provided but not billed or paid by Medicaid are not represented by these data.

These results cannot be generalized to adults with other insurance or without insurance.

Standard codes are designed to support reimbursement rather than clinical or surveillance purposes.

Claim/Encounter data are not medical records.

- No specifics on clinical matters discussed during office visits
- Chart data would give comorbidities and conditions diagnosed by clinician.
    - All is based on utilization data.
- No Lab results (GFR, HbA1C…)

PRODUCTS

Marketing URL

http://www.michigan.gov/diabetesstats

ACKNOWLEDGEMENTS

MEDICAL SERVICES ADMINISTRATION (MICHIGAN MEDICAID) AND STATE OF MICHIGAN

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Peter DeGuire, MS

Other Chronic Diseases Section Manager: Judi Lyles, PHD

William Baugh, MA

BLUE CROSS BLUE SHIELD OF MICHIGAN

Elizabeth A. Wasilevich, MPH

UNIVERSITY OF MICHIGAN

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Q & A

ADDITIONAL

Q AND A

Provide moderator with a couple of questions as an icebreaker.

- How are comorbidities addressed?
- Wow, in 2013, only 4% of mothers with pre-existing diabetes had no complications during delivery?
- How might some of these data be used for program planning, evaluation, and messaging?
- DSME sites needed?

WHO, WHEN, AND WHY

Who Medicaid Beneficiaries 15-64 years of age with diabetes insured by Michigan Medicaid

When 2007-2013

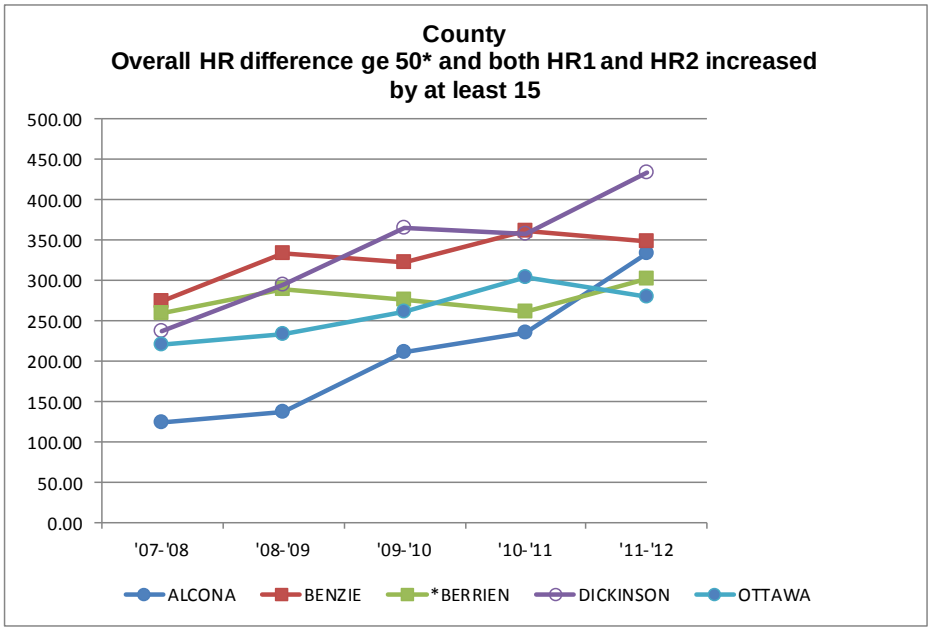
Why Medicaid beneficiaries in Michigan comprise a population that we currently have the most valuable, robust data.

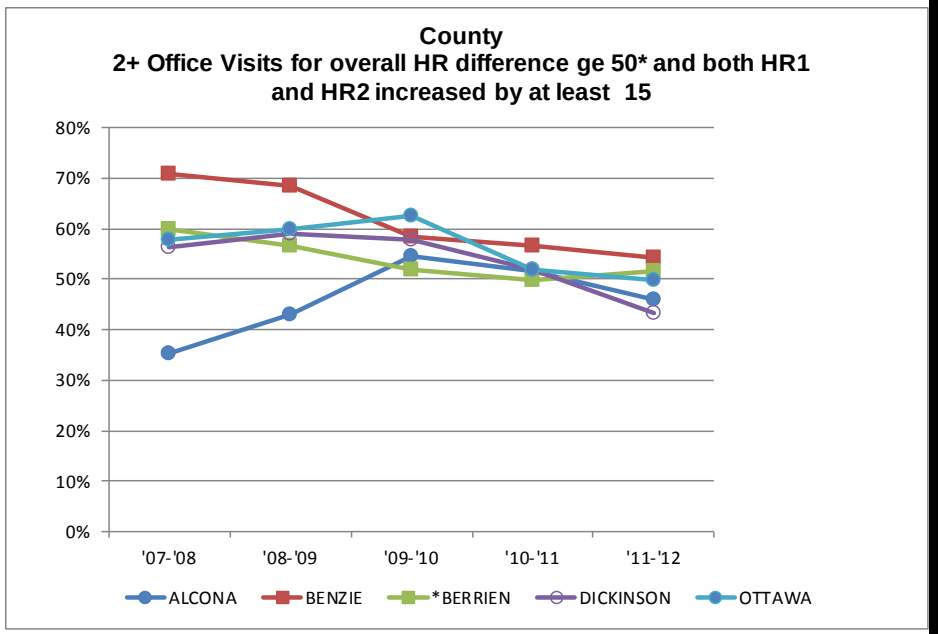
Surveillance, health care utilization, and access to care data provide information to state and local diabetes programs so that data-driven decisions can be made to improve interventions.

Also, MDCH DPCP can increase support by informing stakeholders, legislators, and grantors about issues around diabetes populations in Michigan.

This represents a tremendous opportunity to measure, assess, and improve health care indicators for Michiganders with diabetes.

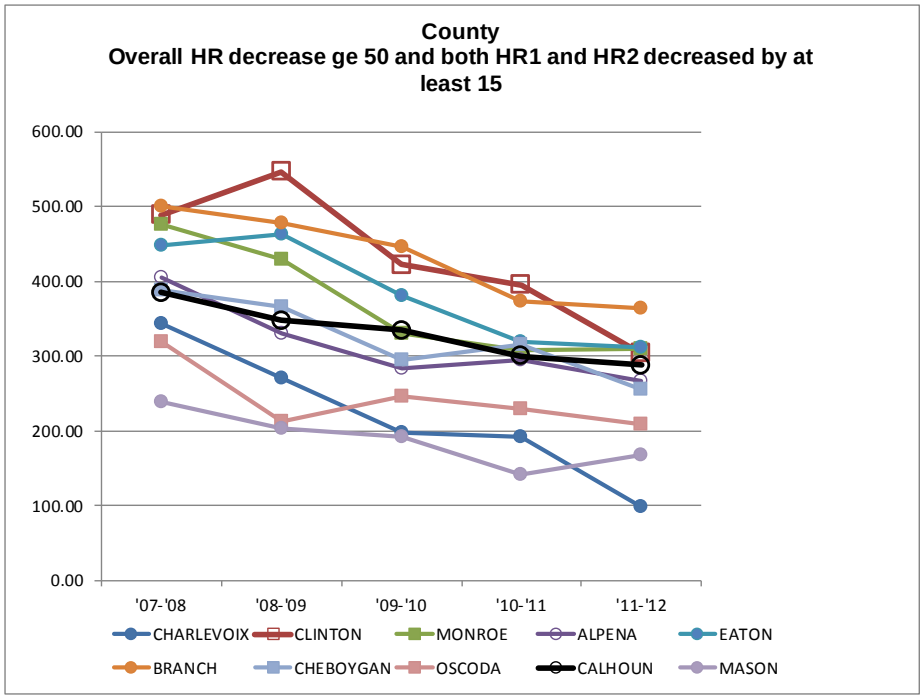
HOSPITALIZATION RATE: NET INCREASE

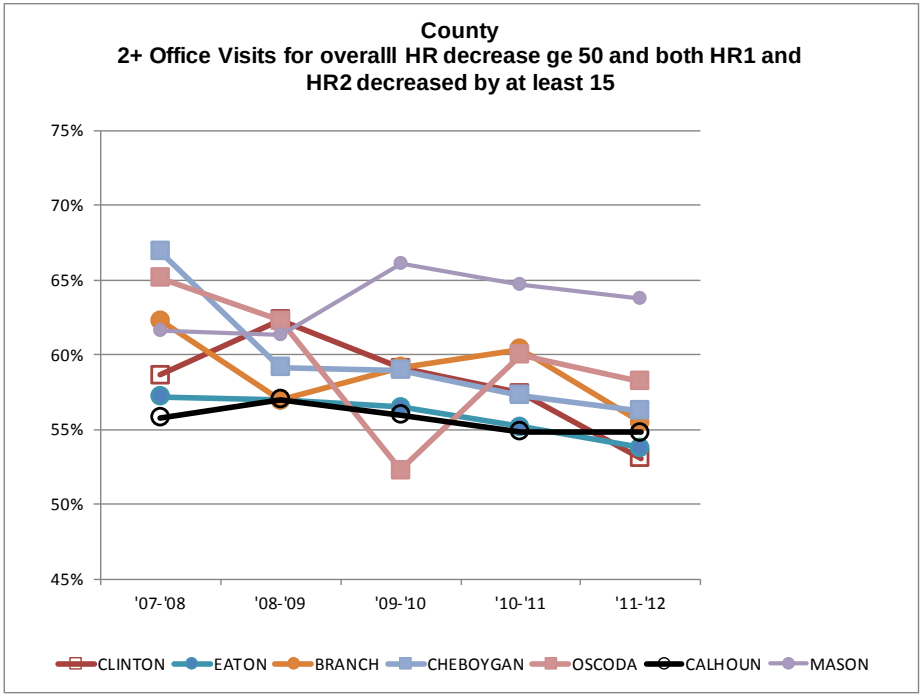




	'07-'08	'08-'09	'09-'10	'10-'11	'11-'12
ALCONA	125.00	137.25	212.12	235.29	333.33
BENZIE	274.19	333.33	323.08	361.45	347.83
*BERRIEN	259.06	288.99	275.86	260.63	302.80
DICKINSON	237.62	295.24	364.49	358.49	432.69
OTTAWA	219.73	233.40	261.30	304.20	280.33

HOSPITALIZATION RATE: NET DECREASE

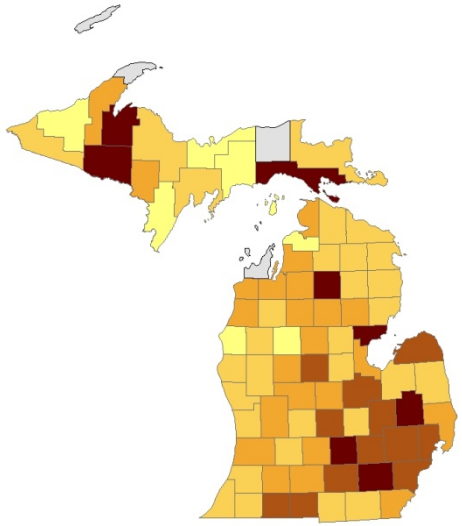




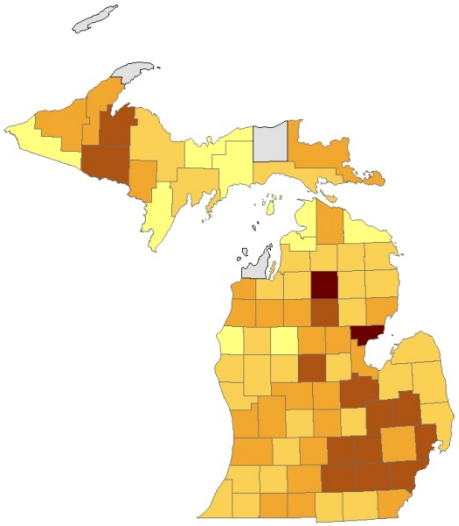
	'07-'08	'08-'09	'09-'10	'10-'11	'11-'12
CHARLEVOIX	344.09	269.66	197.53	192.77	98.77
CLINTON	488.72	546.15	422.08	394.87	303.32
MONROE	476.02	429.29	330.75	308.21	308.86
ALPENA	404.26	329.97	283.74	294.12	265.96
EATON	448.16	463.58	379.87	319.75	311.05
BRANCH	500.00	478.26	445.83	373.08	363.28
CHEBOYGAN	388.49	366.20	294.87	314.61	255.68
OSCODA	318.18	213.11	246.15	228.57	208.96
CALHOUN	385.12	347.34	334.89	300.30	287.35
MASON	238.99	202.38	192.09	141.41	168.37

MAPS

2009 AND 2010 COMBINED

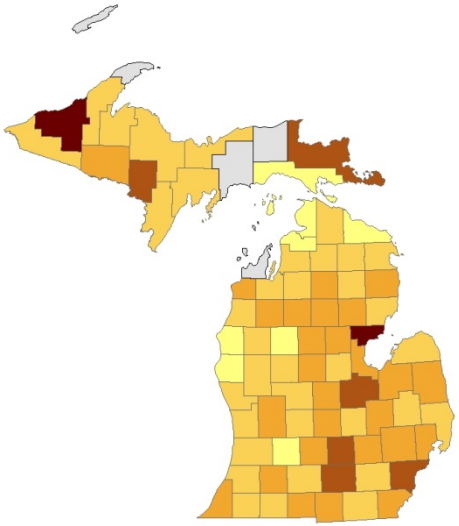


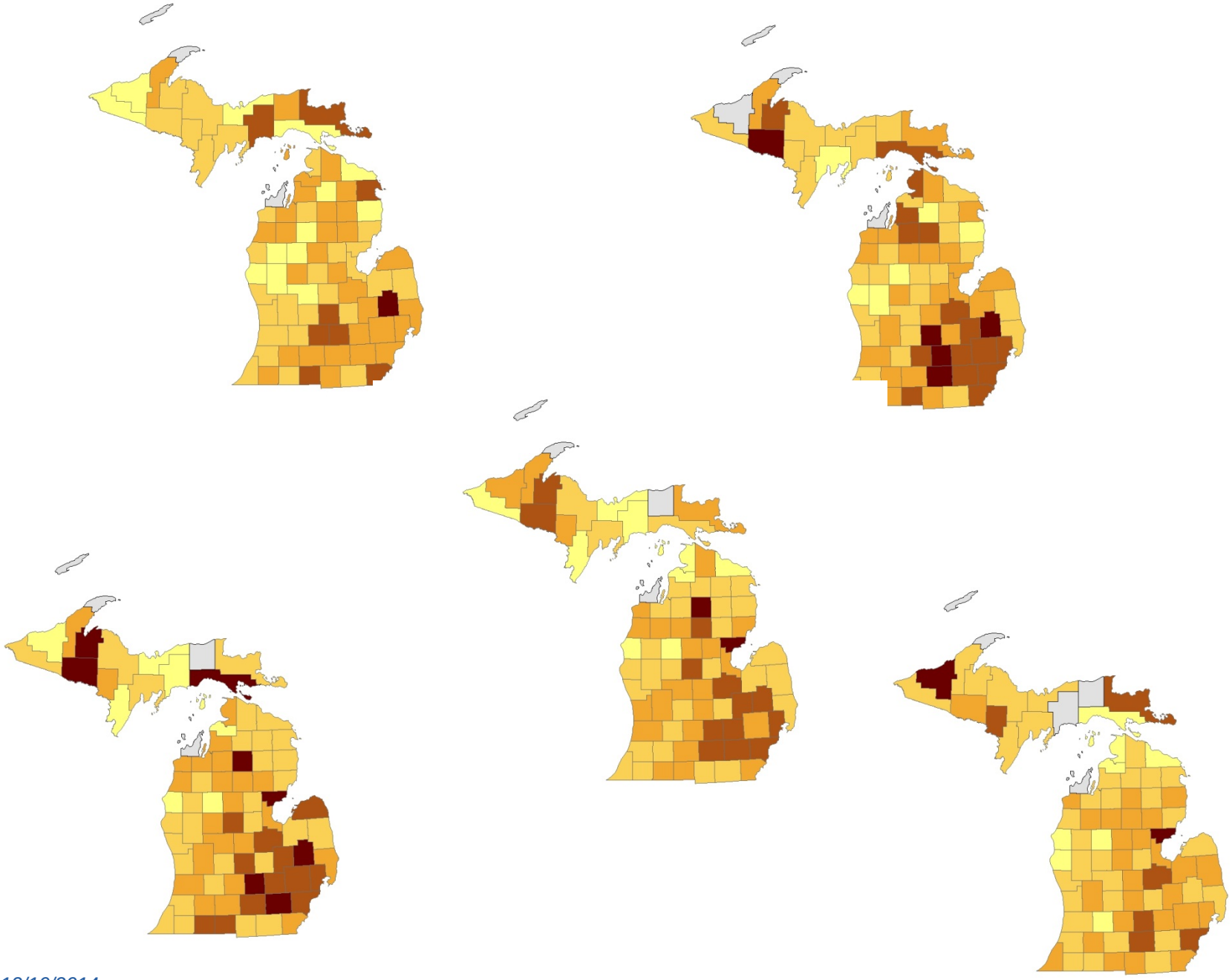
2010 AND 2011 COMBINED



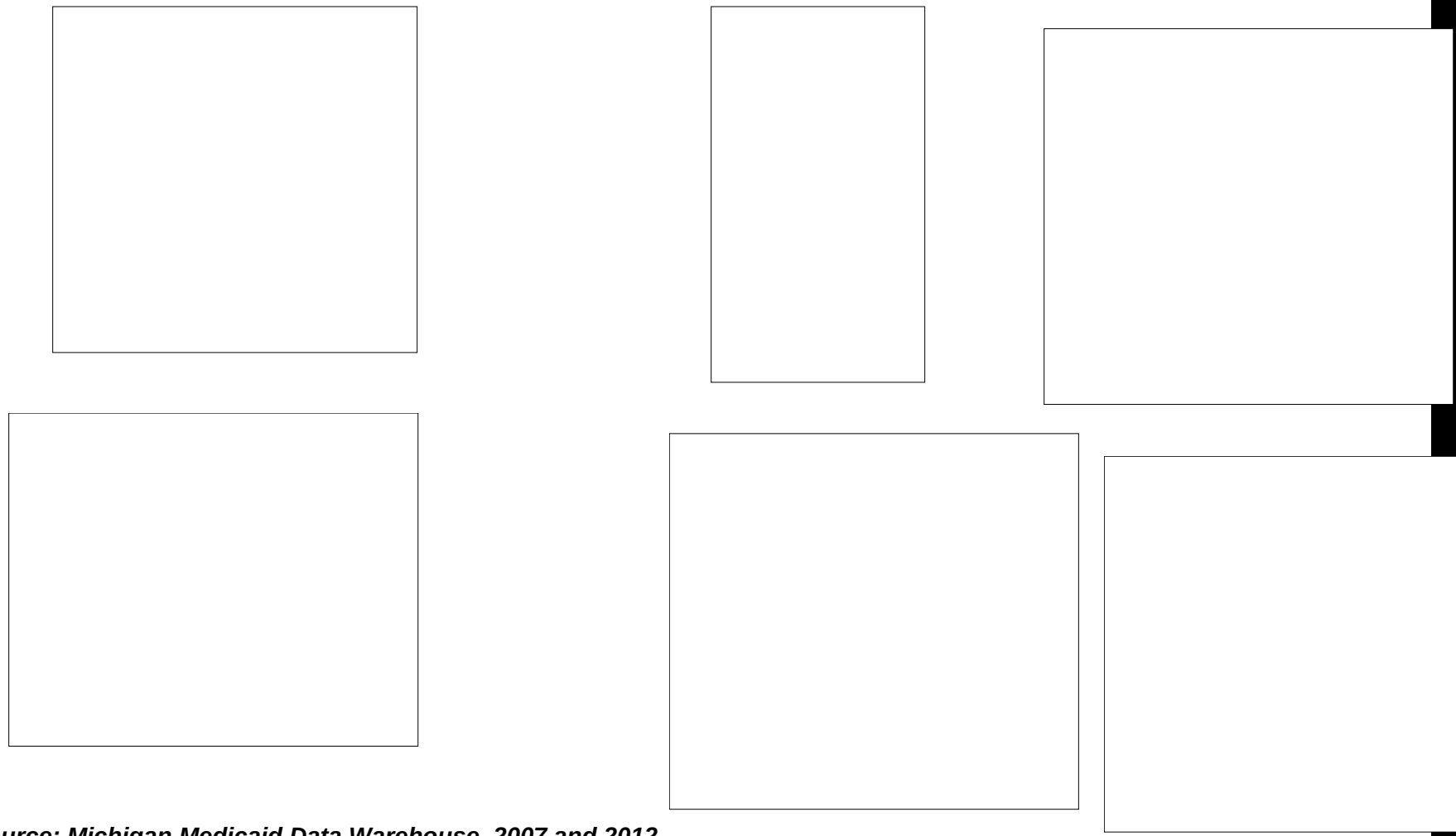
MAPS

2011 AND 2012 COMBINED





COUNTY PERCENTAGE AND NUMBER OF ADULTS WITH DIABETES (18-64 YRS.), MICHIGAN MEDICAID 2007 AND 2012



Source: Michigan Medicaid Data Warehouse, 2007 and 2012

EG: METHODS: HEALTHCARE CODES

Four major healthcare coding schemas:

- Diagnoses: ICD-9 Dx,
- Procedures:
  - CPT (Current Procedural Terminology),
  - HCPCS (Healthcare Common Procedure Coding System),
  - ICD-9 Surgical Codes
- National Drug Codes for Rx claims
- Revenue codes for facility charges

These coding schemas are designed to support reimbursement rather than clinical or surveillance purposes. Claims represent raw data that must be organized into meaningful categories whose validity is tested against alternative approaches.

- Using Medicaid claims involves assessing data integrity issues, an understanding of limitations, identifying sources of error, and an iterative design process.
- It is a time-consuming, data intense, overwhelming undertaking that is a worthwhile investment.

COUNTY
PERCENTAGE OF ADULTS WITH DIABETES 18-64 YEARS) AND THOSE 45 YEARS AND OVER, MICHIGAN MEDICAID 2007 AND 2012

Source: Michigan Medicaid Data Warehouse, 2007 and 2012

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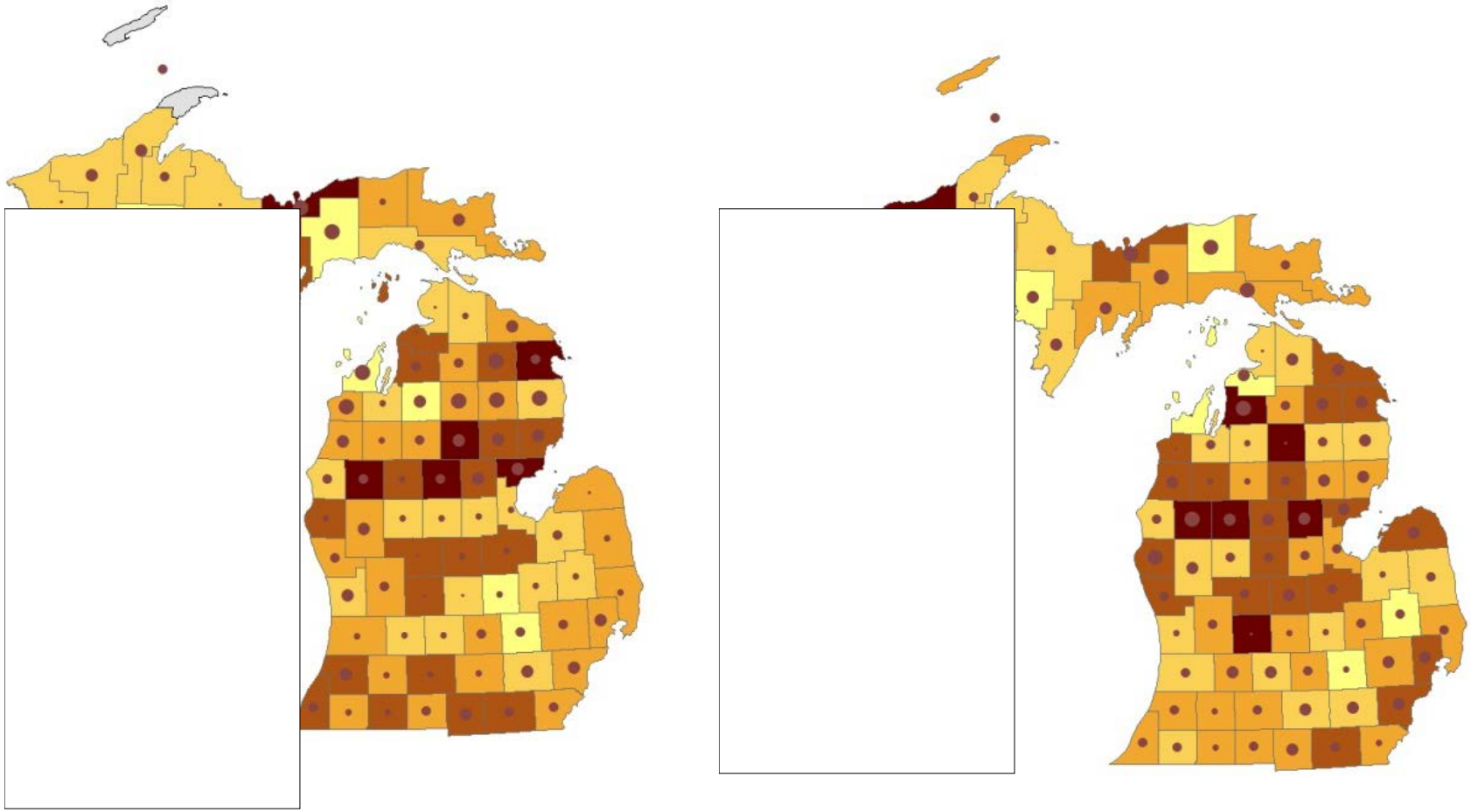

Source: Michigan Medicaid Data Warehouse, 2007 and 2012

MEDICAID EXPANSION

Counts

Diabetes Prevalence?