MICHIGAN SUICIDE PREVENTION: FINDING & USING LOCAL DATA

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Michigan Department of Community Health

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INTRODUCTION

- Why look at data anyway?
- Experiences at local level =
- Overall message:
  - Many challenges, but ...
  - Do the best you can!

OVERVIEW

- Sources of data
  - Description
  - How to obtain
  - Limitations
- Importance of calculating rates
  - Where to find local area population statistics
- Effective ways to present data

SOURCES of STATEWIDE DATA

- Death Certificates
- Hospital Discharge Data
- Child Death Reviews
- Youth Risk Behavior Survey
- Poison Control Center

POTENTIAL DATA SOURCES

- Trauma Registry
- Pre-hospital Care (EMS) Reports
- Medical Examiner Records
- Emergency Department Records
- Michigan Violent Death Reporting System

DEATH CERTIFICATES

- All MI resident injury deaths
- Since 1999, coded per ICD10
- Captures 100%
- Cause of injury – very accurate & 100%
- Most recent year: 2009
  - Available 10-12 months after end of year
- Information at local level:
  - County & city/town of residence
  - County & city/town of occurrence

DEATH CERTIFICATES

- In 2009, 1164 MI resident suicides
- By county, # suicides ranged from:
  - 192 (Wayne) to 1 (6 counties)
  - 29 counties had 2 – 5 deaths
- So, limitation=small numbers; solution = combine years or combine counties

DEATH CERTIFICATES

- Data items available:
  - Age
  - Sex
  - Race
  - Hispanic ethnicity
  - Ancestry
  - Cause of injury
  - Injury at work
  - City/county of residence/occurrence
  - Date of death
  - Brief description of how injury occurred

DEATH CERTIFICATES

- Cause of injury – specifies suicide mechanism
  - Poisoning (type of substance also available)
  - Hanging
  - Drowning
  - Firearm
  - Smoke/Fire/Flames
  - Sharp object
  - Blunt object
  - Jumping from height
  - Lying in front of moving object
  - Crashing motor vehicle

DEATH CERTIFICATES

- How to obtain data:
  - MDCH website for existing tables
  - MI injury mortality reports
    - 1994-1998
    - 1999-2001
    - 2002-2006
  - CDC WONDER
    - User can create MI map by county
  - Make request to TL
    - LargoT@michigan.gov

DEATH CERTIFICATES

Relevant websites

Existing tables on MDCH website:
http://www.mdch.state.mi.us/pha/osr/index.asp?Id=29

Injury mortality reports (MDCH Injury Prevention Section):
http://www.michigan.gov/mdch/0,1607,7-132-54783_54879---,00.html

CDC WONDER:
http://wonder.cdc.gov/mortSQL.html

HOSPITAL DISCHARGE DATA

- All MI residents (incl. out-of-state hospitals)
- Definition – hospital admission/discharge
- All hospitals participate (~130 acute in MI)
- Diagnoses coded via ICD-9-CM
- Most recent year: 2009
  - Available 16 months after end of year
- Cause of injury coding
  - likely less accurate than death certificates
  - 81% in 2009

HOSPITAL DISCHARGE DATA

- Information at local level:
  - County of residence
  - Zip code of residence
- Can be tricky to compare counties due to differences in cause of injury coding by county

HOSPITAL DISCHARGE DATA

- In 2009, 5323 MI resident non-fatal hospitalizations for intentional self-harm
- By county, # ranged from:
  - 957 (Wayne) to 0 (3 counties)
  - 7 counties had 1 - 5 hospitalizations
- Small numbers less of a problem than with dc's, but can still be problem in some areas

HOSPITAL DISCHARGE DATA

- Data items available:
  - Age
  - Sex
  - Race
  - Principal & secondary diagnoses
  - Cause of injury
  - County/zip code of residence
  - Date of admission/discharge
  - Payment source
  - Discharge disposition (e.g., died, to psych facility)

HOSPITAL DISCHARGE DATA

- How to obtain data:
  - MI injury hospitalization reports
    - 1999 (hardcopy)
    - 2001, 2002, 2007 (on website)
    - Limited to counties with 90%+ E-coding rates
  - Make request to Tom Largo

HOSPITAL DISCHARGE DATA

Relevant website:

Injury hospitalization reports (MDCH Injury Prevention Section):

http://www.michigan.gov/mdch/0,1607,7-132-54783_54879---,00.html

CHILD DEATH REVIEW

- Performed at county/multi-county level
- Occurrences within county/counties
- Injury deaths (some do natural also)
- Ages 0-18 (some up to age 21)
- Composition of Review Team:
  - ME, LEA, DHS, prosecuting attorney, MDCH or local PH

CHILD DEATH REVIEW

- How to obtain data:
  - http://www.keepingkidsalive.org/
    - Existing tables
    - Fill out data request form (available online)

YOUTH RISK BEHAVIOR SURVEY

- Survey conducted in a sample of high schools (n=43-50) every other year
- Data exist for '97, '99, '01, '03, '05, '07, '09
- Includes questions on depression & suicide
- Age/sex/race/grade level available
- NOTE: Data not available at county level

YOUTH RISK BEHAVIOR SURVEY

- Questions related to depression/suicide

  In last 12 months, have you:
  - Felt so sad/hopeless almost every day for 2 weeks that you stopped doing some usual activity?
  - Seriously considered attempting suicide?
  - Made a plan for attempting suicide?
  - Actually attempted suicide?
  - Attempted suicide and had injury/overdose that required medical treatment?

YOUTH RISK BEHAVIOR SURVEY

- How to obtain data:
  - Reports found at: www.michigan.gov/yrbs
  - Kim Kovalchick: kovalchickk@michigan.gov
- National reports (most recent, 2009)
  - http://www.cdc.gov/HealthyYouth/yrbs/index.htm

POISON CONTROL CENTER

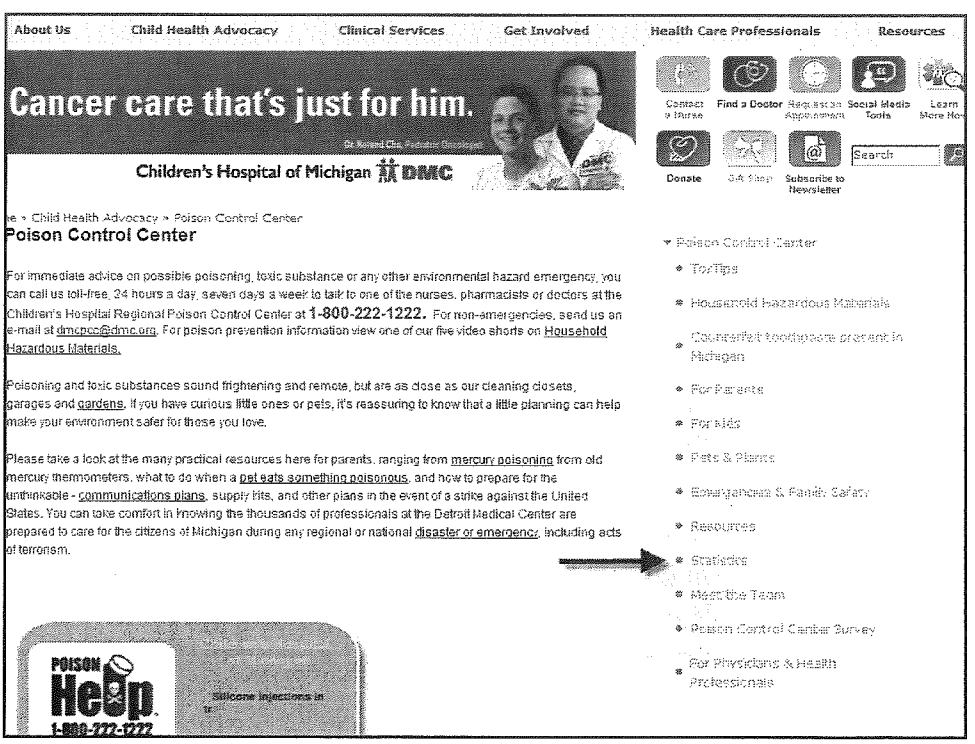
- Children's Hospital of MI (in Detroit)
  - Consolidated with DeVos (GR) in 2009
- 2008 – MI: 84,361 human exposure calls
  - They also field calls on
    - Human non-exposures
    - Animal exposures & non-exposures
    - Information only
- Data collected includes: age, sex, county, clinical effects, intentionality, substance type

POISON CONTROL CENTER

- Exposures divided into:
  - Unintentional
  - Intentional
    - Misuse
    - Abuse
    - Suspected Suicidal
      - 7,593 cases in 2008

POISON CONTROL CENTER

- For annual state reports (2005-2008):
  - mitoxic.org
  - Scroll down & select "Statistics"



POISON CONTROL CENTER

- For adhoc requests: Susan Smolinske
  - ssmolins@dmc.org

POTENTIAL SOURCES

- Trauma Registry
  - traumatic injuries (excludes poisonings)
  - hospitalized or died in ED
  - much more detail than hospital discharge data
  - current effort to develop statewide system
  - access to data – need to check with local hospital(s) to see if they maintain registry & could work w/you
- Pre-hospital Care (EMS) Reports
  - > 800 agencies & 1.5 million calls per year
  - current effort to develop statewide system
  - as of 12/10 about 70% of agencies submitting data

POTENTIAL SOURCES

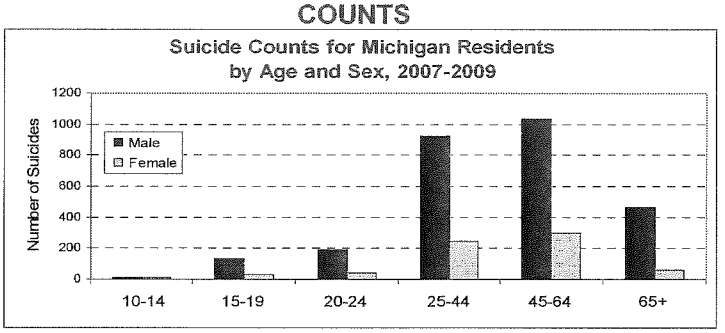
- Medical Examiner Records
  - Greater depth of info than death certificates
  - Availability of data – check with local ME

POTENTIAL SOURCES

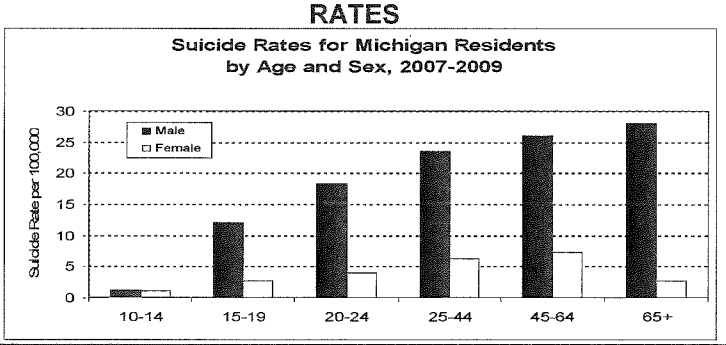
- Michigan Violent Death Reporting System
  - Designed to obtain detailed, high quality data
  - Suicide, homicide, unintentional firearm, undetermined intent, legal intervention, terrorism
  - Multiple data sources (*death certificate, law enforcement, medical examiner*, child death review, supplementary homicide, crime lab)
  - Resident and occurrent violent deaths

SO FAR, HAVE DISCUSSED HOW TO ACCESS DATA ON **NUMBER OF CASES** ONLY

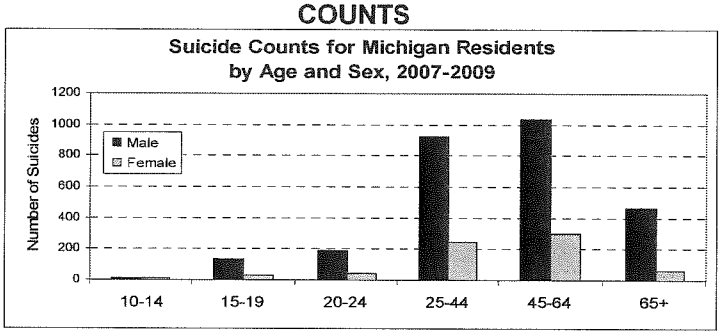
COUNTS



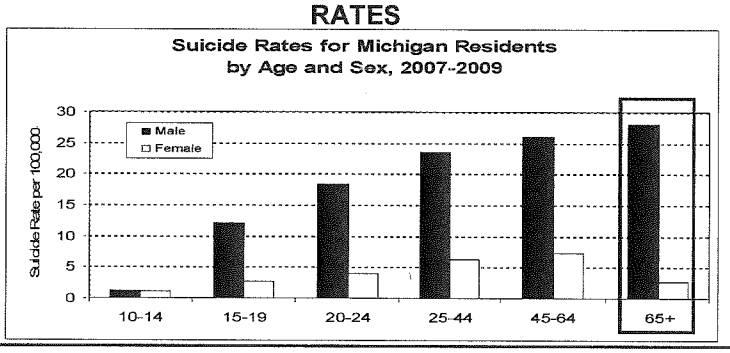
RATES



COUNTS



RATES

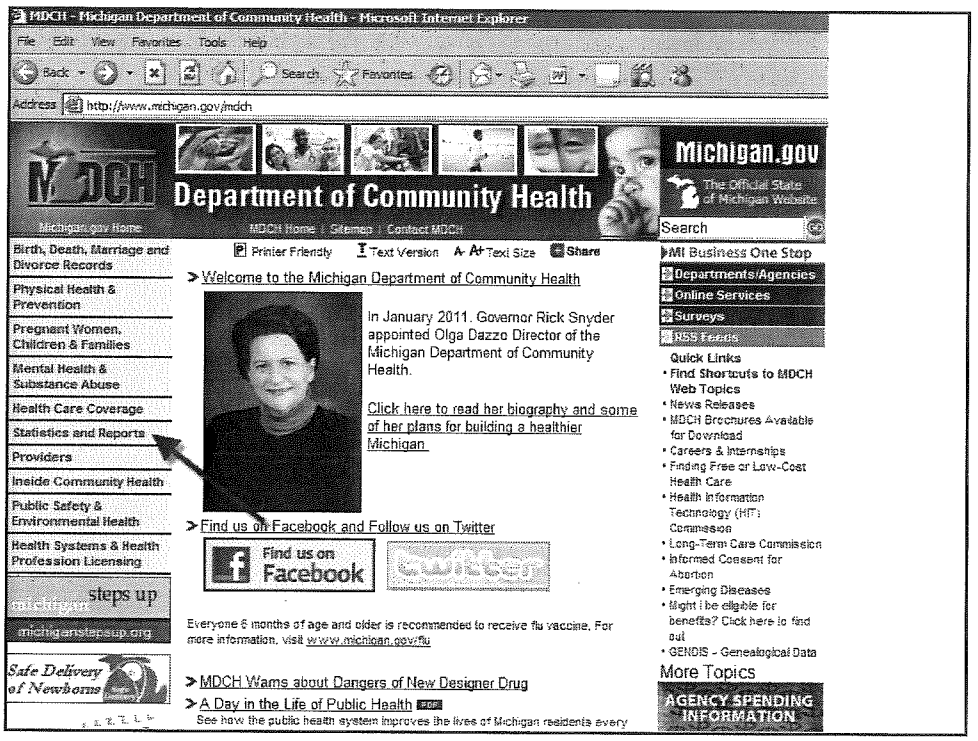


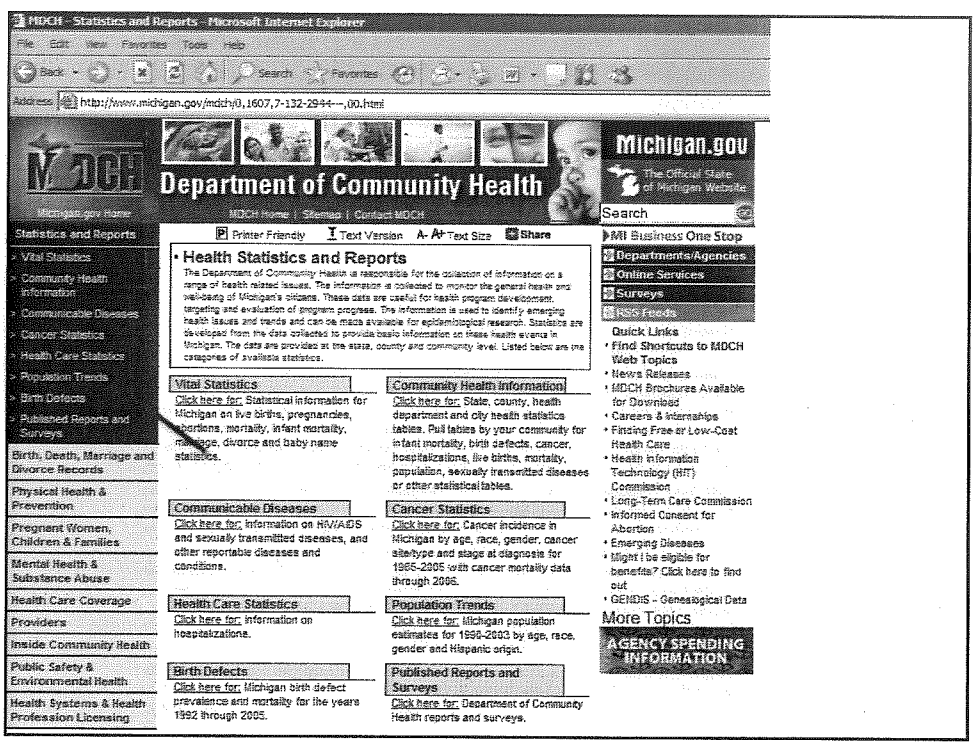
A RATE
IS
MUCH MORE USEFUL
THAN A
SIMPLE COUNT

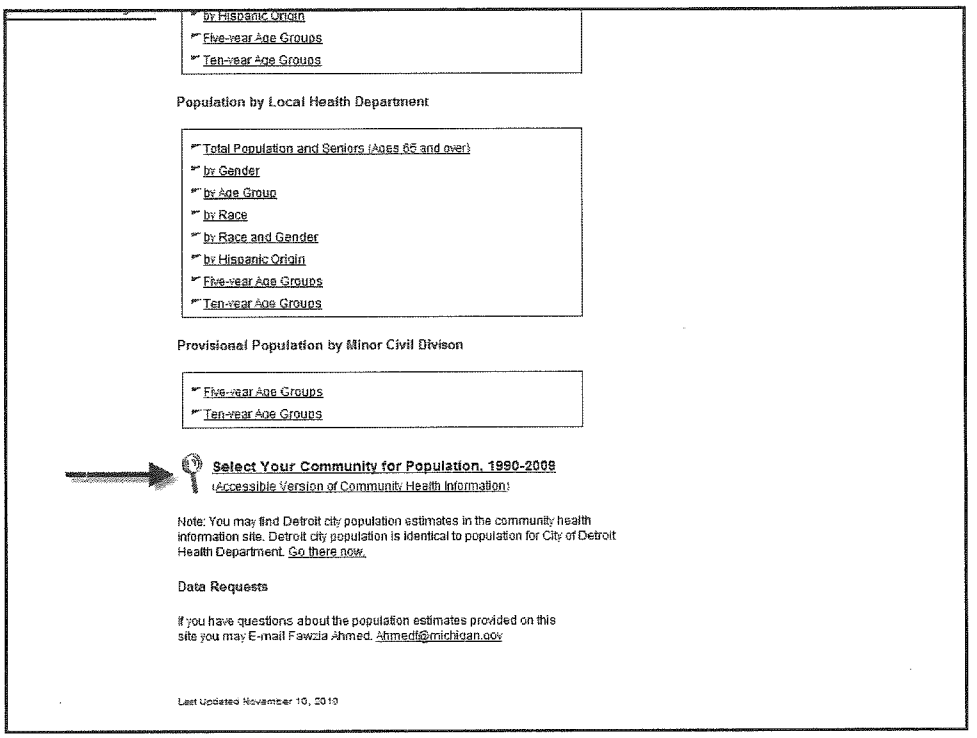
A rate is essential to compare:
- different places
- different groups of people
- same group over time

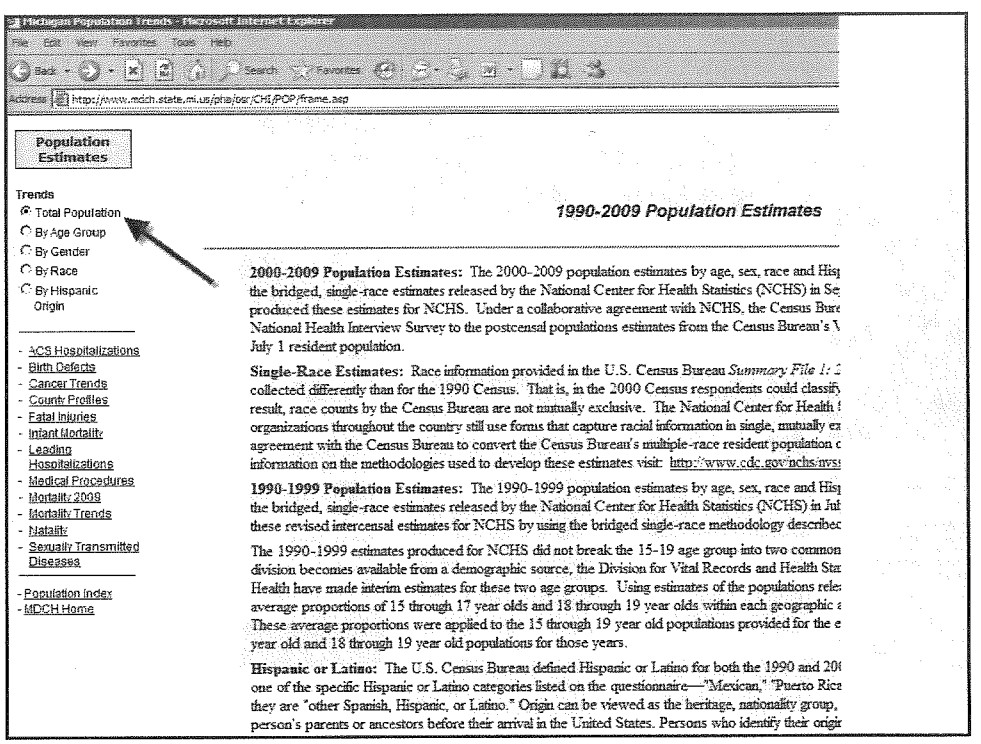
CALCULATING RATES

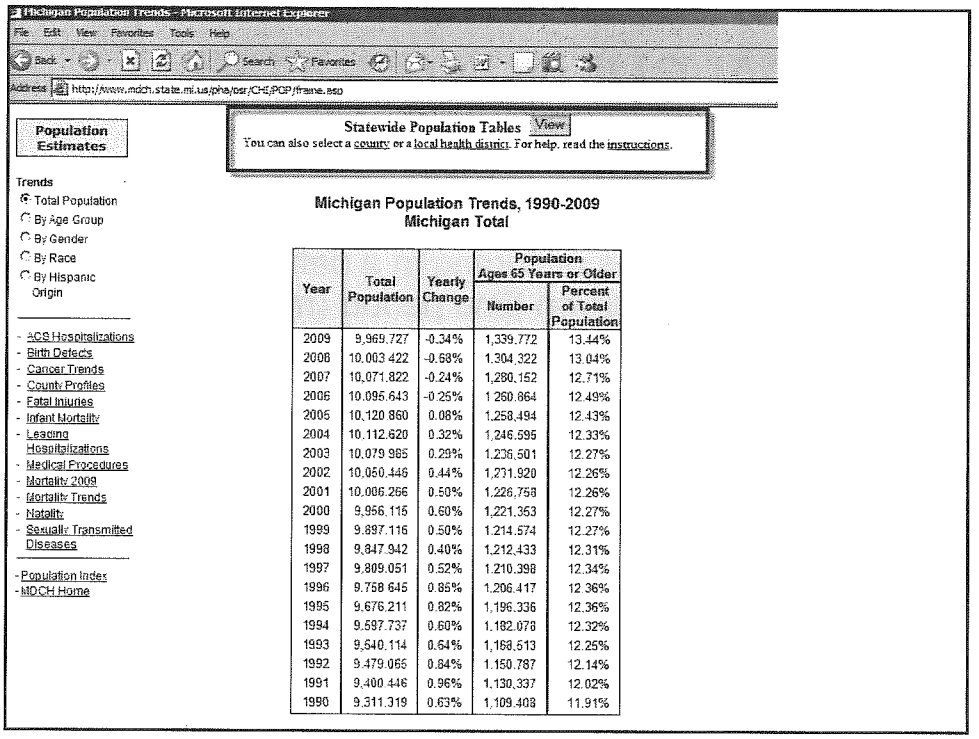
- Need population data ⟶ Census
- To obtain on the web:


MDCH - Michigan Department of Community Health - Microsoft Internet Explorer
Department of Community Health
Michigan.gov
Search
Birth, Death, Marriage and Divorce Records
Physical Health & Prevention
Pregnant Women, Children & Families
Mental Health & Substance Abuse
Health Care Coverage
Statistics and Reports
Providers
Inside Community Health
Public Safety & Environmental Health
Health Systems & Health Profession Licensing
Welcome to the Michigan Department of Community Health
In January 2011, Governor Rick Snyder appointed Olga Dazzo Director of the Michigan Department of Community Health.
Click here to read her biography and some of her plans for building a healthier Michigan
Find us on Facebook and Follow us on Twitter
Find us on Facebook
Everyone 6 months of age and older is recommended to receive flu vaccine. For more information, visit www.michigan.gov/flu
MDCH Warns about Dangers of New Designer Drug
A Day in the Life of Public Health
Quick Links
Find Shortcuts to MDCH Web Topics
News Releases
MDCH Brochures Available for Download
Careers & Internships
Finding Free or Low-Cost Health Care
Health Information Technology (HIT) Commission
Long-Term Care Commission
Informed Consent for Abortion
Emerging Diseases
Might I be eligible for benefits? Click here to find out
GENDIS - Genealogical Data
More Topics
AGENCY SPENDING INFORMATION


MDCH - Statistics and Reports - Microsoft Internet Explorer
Department of Community Health
Michigan.gov
Search
Statistics and Reports
Health Statistics and Reports
Vital Statistics
Click here for: Statistical information for Michigan on live births, pregnancies, abortions, mortality, infant mortality, marriage, divorce and baby name statistics.
Community Health Information
Click here for: State, county, health department and city health statistics tables. Pull tables by your community for infant mortality, birth defects, cancer, hospitalizations, live births, mortality, population, sexually transmitted diseases or other statistical tables.
Communicable Diseases
Click here for: Information on HIV/AIDS and sexually transmitted diseases, and other reportable diseases and conditions.
Cancer Statistics
Click here for: Cancer incidence in Michigan by age, race, gender, cancer site/type and stage at diagnosis for 1985-2005 with cancer mortality data through 2006.
Health Care Statistics
Click here for: Information on hospitalizations.
Population Trends
Click here for: Michigan population estimates for 1990-2003 by age, race, gender and Hispanic origin.
Birth Defects
Click here for: Michigan birth defect prevalence and mortality for the years 1992 through 2005.
Published Reports and Surveys
Click here for: Department of Community Health reports and surveys.
More Topics
AGENCY SPENDING INFORMATION


by Hispanic Origin
Five-year Age Groups
Ten-year Age Groups
Population by Local Health Department
Total Population and Seniors (Ages 65 and over)
by Gender
by Age Group
by Race
by Race and Gender
by Hispanic Origin
Five-year Age Groups
Ten-year Age Groups
Provisional Population by Minor Civil Divison
Five-year Age Groups
Ten-year Age Groups
Select Your Community for Population, 1990-2009
(Accessible Version of Community Health Information)
Note: You may find Detroit city population estimates in the community health information site. Detroit city population is identical to population for City of Detroit Health Department. Go there now.
Data Requests
If you have questions about the population estimates provided on this site you may E-mail Fawzia Ahmed. Ahmedf@michigan.gov
Last Updated November 10, 2010


Michigan Population Trends - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Address http://www.mdch.state.mi.us/pha/osr/CHI/POP/frame.asp
Population Estimates
Trends
Total Population
By Age Group
By Gender
By Race
By Hispanic Origin
ACS Hospitalizations
Birth Defects
Cancer Trends
County Profiles
Fatal Injuries
Infant Mortality
Leading Hospitalizations
Medical Procedures
Mortality 2009
Mortality Trends
Natality
Sexually Transmitted Diseases
Population Index
MDCH Home
1990-2009 Population Estimates
2000-2009 Population Estimates: The 2000-2009 population estimates by age, sex, race and Hisp
the bridged, single-race estimates released by the National Center for Health Statistics (NCHS) in Se
produced these estimates for NCHS. Under a collaborative agreement with NCHS, the Census Bure
National Health Interview Survey to the postcensal populations estimates from the Census Bureau's
July 1 resident population.
Single-Race Estimates: Race information provided in the U.S. Census Bureau Summary File 1:
collected differently than for the 1990 Census. That is, in the 2000 Census respondents could classify
result, race counts by the Census Bureau are not mutually exclusive. The National Center for Health
organizations throughout the country still use forms that capture racial information in single, mutually ex
agreement with the Census Bureau to convert the Census Bureau's multiple-race resident population
information on the methodologies used to develop these estimates visit: http://www.cdc.gov/nchs/nvss
1990-1999 Population Estimates: The 1990-1999 population estimates by age, sex, race and Hisp
the bridged, single-race estimates released by the National Center for Health Statistics (NCHS) in Jul
these revised intercensal estimates for NCHS by using the bridged single-race methodology describec
The 1990-1999 estimates produced for NCHS did not break the 15-19 age group into two common
division becomes available from a demographic source, the Division for Vital Records and Health Sta
Health have made interim estimates for these two age groups. Using estimates of the populations rele
average proportions of 15 through 17 year olds and 18 through 19 year olds within each geographic
These average proportions were applied to the 15 through 19 year old populations provided for the e
year old and 18 through 19 year old populations for those years.
Hispanic or Latino: The U.S. Census Bureau defined Hispanic or Latino for both the 1990 and 20
one of the specific Hispanic or Latino categories listed on the questionnaire—"Mexican," "Puerto Rica
they are "other Spanish, Hispanic, or Latino." Origin can be viewed as the heritage, nationality group,
person's parents or ancestors before their arrival in the United States. Persons who identify their origi



Michigan Population Trends - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://www.mdch.state.mi.us/pha/osr/CHI/POP/frame.asp

Population Estimates

Trends
- Total Population
- By Age Group
- By Gender
- By Race
- By Hispanic Origin

- ACS Hospitalizations
- Birth Defects
- Cancer Trends
- County Profiles
- Fatal Injuries
- Infant Mortality
- Leading Hospitalizations
- Medical Procedures
- Mortality 2009
- Mortality Trends
- Natality
- Sexually Transmitted Diseases

- Population Index
- MDCH Home

Statewide Population Tables View

You can also select a county or a local health district. For help, read the instructions.

Michigan Population Trends, 1990-2009
Michigan Total

Year	Total Population	Yearly Change	Population Ages 65 Years or Older	
			Number	Percent of Total Population
2009	9,969,727	-0.34%	1,339,772	13.44%
2008	10,003,422	-0.68%	1,304,322	13.04%
2007	10,071,822	-0.24%	1,280,152	12.71%
2006	10,095,643	-0.25%	1,260,864	12.49%
2005	10,120,860	0.08%	1,258,494	12.43%
2004	10,112,620	0.32%	1,246,595	12.33%
2003	10,079,985	0.29%	1,236,501	12.27%
2002	10,050,446	0.44%	1,231,920	12.26%
2001	10,006,266	0.50%	1,226,758	12.26%
2000	9,956,115	0.60%	1,221,353	12.27%
1999	9,897,116	0.50%	1,214,574	12.27%
1998	9,847,942	0.40%	1,212,433	12.31%
1997	9,809,051	0.52%	1,210,398	12.34%
1996	9,758,645	0.85%	1,206,417	12.36%
1995	9,676,211	0.82%	1,196,336	12.36%
1994	9,597,737	0.60%	1,182,078	12.32%
1993	9,540,114	0.64%	1,168,513	12.25%
1992	9,479,065	0.84%	1,150,787	12.14%
1991	9,400,446	0.96%	1,130,337	12.02%
1990	9,311,319	0.63%	1,109,408	11.91%

CALCULATING RATES

- Need population data ⟶ Census
- To obtain on the web:
  - go to http://www.michigan.gov/mdch
  - select Statistics & Reports in left column
  - select Population Trends in left column
  - scroll down and click on "Select Your Community for Population 1990-2009"
  - Select "Total Population in left column
  - choose from among Statewide Tables by County

CALCULATING RATES

Rate =

Number of cases occurring in a defined population in a given time period (numerator)

divided by

Average population of the defined population during the time period (denominator)

Another component = multiplier which converts to less awkward number

Calculation of a Rate

$$r = (c / p) \times 10^n$$

where:

r = rate (e.g. cases per 100,000 population)

c = number of cases occurring in a specified time period

p = number of people at risk of being a case during the time period

n = usually between 4 and 6 – your choice!

Rate Calculation Example 1

1. Number of Wayne County resident suicides in 2009: 192

   Population of Wayne County residents in 2009: 1,925,848

   rate = (192 / 1,925,848) x 100,000
   = 10 per 100,000

Rate Calculation Example 2

2. Number of Wayne County resident suicides in 2007-2009: 568

   Population of Wayne County residents in 2007,2008,2009 combined: 5,860,878

   rate = (568 / 5,860,878) x 100,000
   = 9.7 per 100,000

Caution

- Recommended that rates not be calculated if number of cases is "small." For example, less than 6 cases.

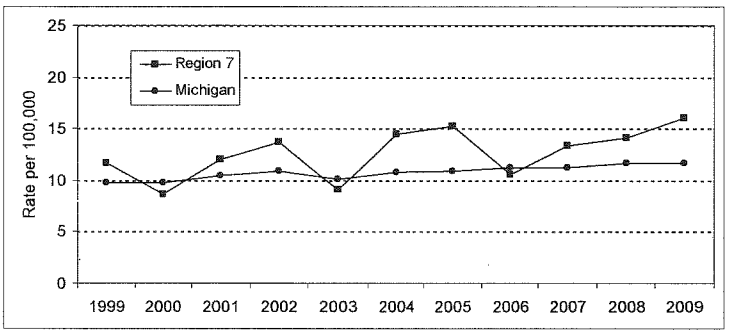
- Solutions:
  - Combine multiple years
  - Combine counties

Effective Ways to Present Data

- By itself, a single rate is fairly meaningless
  - For overall local rate:
    - Develop trend data (at least 5 years)
    - Make comparisons (e.g., MI, other similar localities)
  - If numbers large enough, delve into local rate:
    - Male v. Female
    - Broad age groups
    - Mechanisms (e.g., firearm, hanging, poisoning)

Effective Ways to Present Data

Long-term trends in suicide rates,
Region 7* vs. Michigan



*Emergency Preparedness Region 7. Counties in this region include Roscommon, Crawford, Missaukee, Wexford, Manistee, Benzie Grand Traverse, Kalkaska, Otsego, Antrim, Leelanau, Charlevoix, Emmet, Cheboygan, Presque Isle, Montmorency, and Alpena

ADVANCED CONCEPTS

- Calculating/illustrating confidence intervals
- Comparing rates for statistical significance
- Age adjustment

CONTACT INFORMATION

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