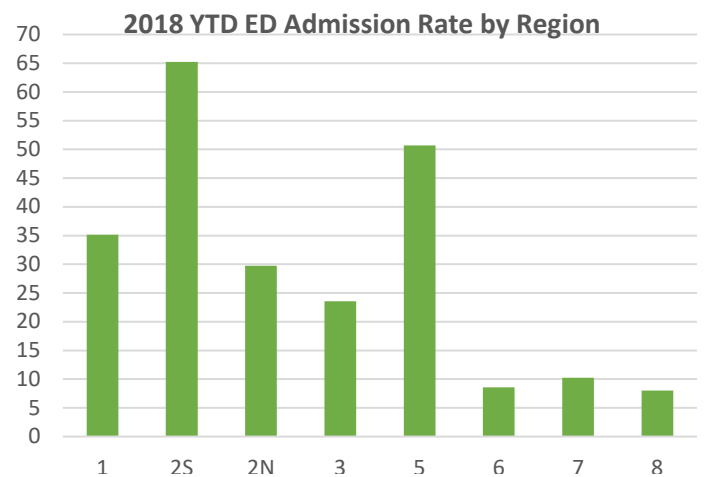
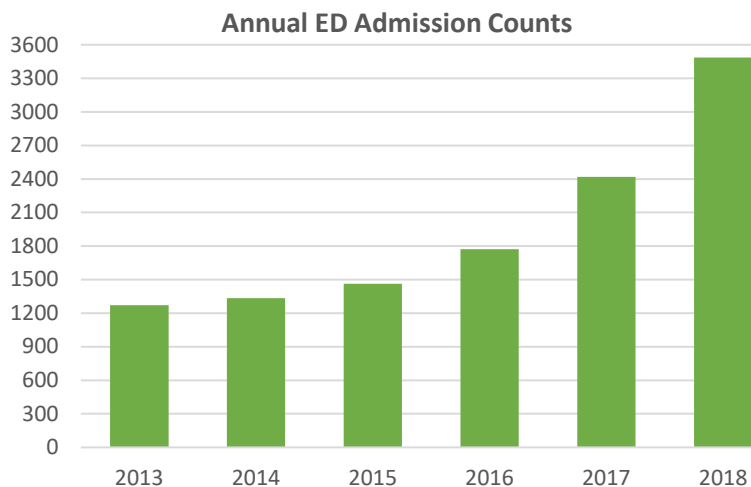
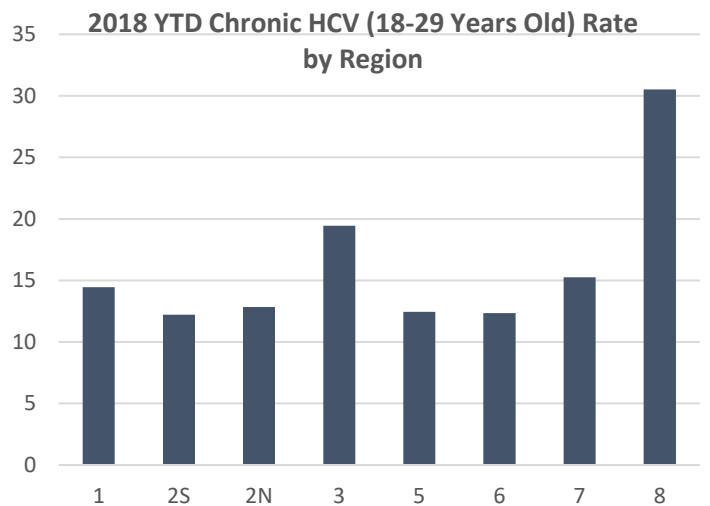
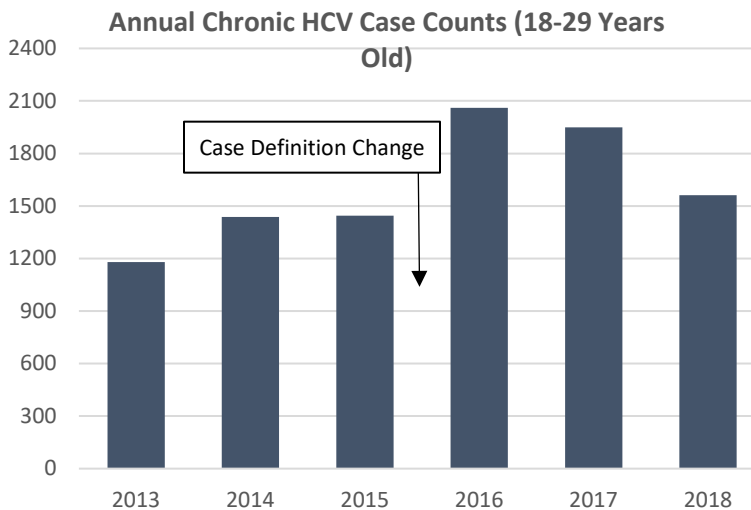
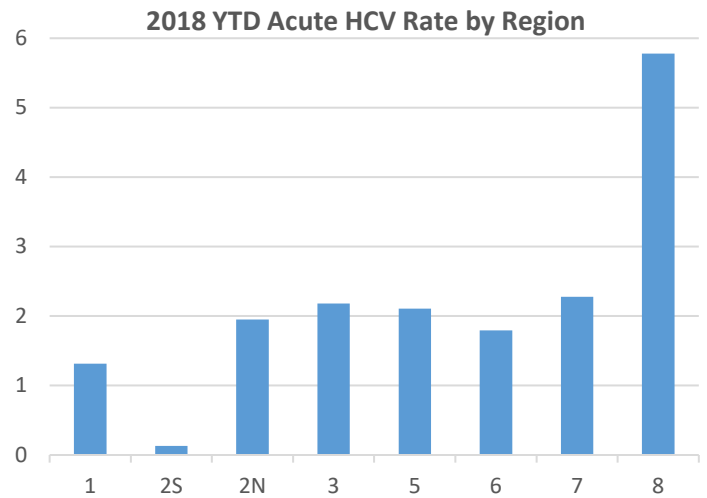
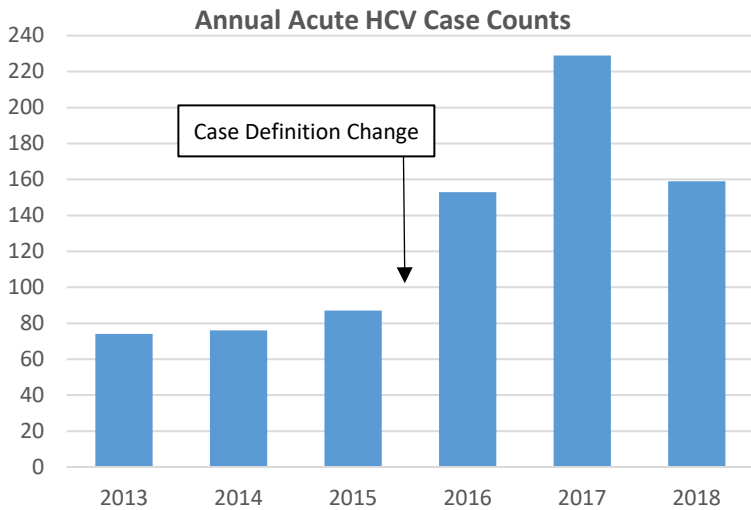


Hepatitis C Virus Quarterly Surveillance Report (Quarter 4, 2018)

(Data referred 10/1/2018 through 12/31/2018—extracted 2/19/2018—Report released 2/20/2018)

This monthly report is designed to inform local health departments of Hepatitis C Virus (HCV) cases reported to the Michigan Disease Surveillance System (MDSS) that may be related to injection drug use. These cases include all acute HCV cases and chronic HCV cases among persons aged 18 to 29. Also included are the number of ED visits related to injection drug use that were reported to the Michigan Syndromic Surveillance System (MSSS). The purpose of the report is to highlight areas where transmission of HCV may be occurring among people who inject drugs. The goal is that, when warranted, this information will lead to more timely and effective public health intervention. Below are State-wide data trends. LHD-specific numbers can be found in the table that follows.

Please see our separate document on **Technical Notes** for how these data are obtained and defined and limitations to the data.



County	LHJ	Region	Acute HCV Cases (Current Quarter)	Acute HCV Cases (This Quarter 2017)	Acute HCV Cases (YTD)	Acute HCV Cases (2017 YTD)
Alcona	District Health Department #2	3	0	0	0	0
Alger	Luce-Mackinac-Alger-Schoolcraft	8	0	0	0	0
Allegan	Allegan	5	0	0	2	0
Alpena	District Health Department #4	7	0	0	0	2
Antrim	Northwest Michigan	7	1	0	3	2
Arenac	Central Michigan	3	0	0	0	0
Baraga	Western Upper Penninsula	8	0	0	1	0
Barry	Barry-Eaton	5	0	0	1	0
Bay	Bay	3	1	4	3	6
Benzie	Benzie-Leelanau	7	0	0	0	0
Berrien	Berrien	5	2	1	5	5
Branch	Branch-Hillsdale-St. Joseph	5	0	0	0	0
Calhoun	Calhoun	5	1	0	2	3
Cass	Van Buren-Cass	5	0	0	1	1
Charlevoix	Northwest Michigan	7	0	0	0	1
Cheboygan	District Health Department #4	7	1	0	1	0
Chippewa	Chippewa	8	0	1	3	2
Clare	Central Michigan	6	0	0	0	1
Clinton	Mid-Michigan	1	0	0	0	1
Crawford	District Health Department #10	7	0	0	0	0
Delta	Delta-Menominee	8	0	3	3	5
Detroit City	Detroit City	25	1	1	1	8
Dickinson	Dickinson-Iron	8	1	2	1	5
Eaton	Barry-Eaton	1	2	1	4	1
Emmet	Northwest Michigan	7	0	0	0	0
Genesee	Genesee	3	2	1	13	9
Gladwin	Central Michigan	3	0	0	0	0
Gogebic	Western Upper Penninsula	8	0	0	0	1
Grand Traverse	Grand Traverse	7	0	2	1	6
Gratiot	Mid-Michigan	1	0	0	0	0
Hillsdale	Branch-Hillsdale-St. Joseph	1	0	0	0	0
Houghton	Western Upper Penninsula	8	0	0	2	1
Huron	Huron	3	0	1	0	1
Ingham	Ingham	1	2	2	8	9
Ionia	Ionia	6	0	1	1	5
Iosco	District Health Department #2	3	0	0	0	1
Iron	Dickinson-Iron	8	1	0	2	0
Isabella	Central Michigan	6	1	0	3	1
Jackson	Jackson	1	0	1	2	4
Kalamazoo	Kalamazoo	5	2	0	7	1
Kalkaska	District Health Department #10	7	0	0	0	0
Kent	Kent	6	0	2	6	8

County	LHJ	Region	Acute HCV Cases (Current Quarter)	Acute HCV Cases (This Quarter 2017)	Acute HCV Cases (YTD)	Acute HCV Cases (2017 YTD)
Keweenaw	Western Upper Peninsula	8	0	0	0	0
Lake	District Health Department #10	6	0	0	0	1
Lapeer	Lapeer	3	0	0	0	1
Leelanau	Benzie-Leelanau	7	0	0	0	0
Lenawee	Lenawee	1	0	1	0	2
Livingston	Livingston	1	0	1	0	1
Luce	Luce-Mackinac-Alger-Schoolcraft	8	0	0	0	0
Mackinac	Luce-Mackinac-Alger-Schoolcraft	8	0	0	0	1
Macomb	Macomb	2N	7	13	31	49
Manistee	District Health Department #10	7	0	0	0	0
Marquette	Marquette	8	0	0	2	5
Mason	District Health Department #10	6	0	0	1	0
Mecosta	District Health Department #10	6	0	0	0	0
Menominee	Delta-Menominee	8	0	1	2	1
Midland	Midland	3	1	1	1	1
Missaukee	District Health Department #10	7	0	0	2	0
Monroe	Monroe	2S	0	2	0	4
Montcalm	Mid-Michigan	6	0	0	3	0
Montmorency	District Health Department #4	7	0	0	0	0
Muskegon	Muskegon	6	2	4	10	12
Newaygo	District Health Department #10	6	0	0	0	1
Oakland	Oakland	2N	0	1	5	9
Oceana	District Health Department #10	6	0	0	0	0
Ogemaw	District Health Department #2	3	0	0	3	1
Ontonagon	Western Upper Peninsula	8	0	0	0	0
Osceola	Central Michigan	6	0	0	1	0
Oscoda	District Health Department #2	3	0	0	0	0
Otsego	Northwest Michigan	7	1	0	2	0
Ottawa	Ottawa	6	0	1	1	2
Presque Isle	District Health Department #4	7	0	0	0	0
Roscommon	Central Michigan	7	0	1	0	1
Saginaw	Saginaw	3	0	0	3	0
St Clair	St Clair	2N	1	6	7	16
St Joseph	Branch-Hillsdale-St. Joseph	5	0	0	0	0
Sanilac	Sanilac	3	1	1	1	2
Schoolcraft	Luce-Mackinac-Alger-Schoolcraft	8	1	1	2	1
Shiawassee	Shiawassee	1	0	0	0	0
Tuscola	Tuscola	3	1	0	1	1
Van Buren	Van Buren-Cass	5	0	1	2	1
Washtenaw	Washtenaw	2S	0	1	1	5
Wayne	Wayne	2S	1	8	1	19
Wexford	District Health Department #10	7	0	0	1	2
MDOC	Michigan Department of Corrections	MDOC	0	0	0	0
STATEWIDE			34	67	159	229

County	LHJ	Region	Chronic HCV Cases, 18-29 years old (Current Quarter)	Chronic HCV, 18-29 years old (This Quarter 2017)	Chronic HCV Cases, 18-29 years old (YTD)	Chronic HCV Cases, 18-29 years old (YTD 2017)
Alcona	District Health Department #2	3	<5	<5	<5	<5
Alger	Luce-Mackinac-Alger-Schoolcraft	8	0	0	0	0
Allegan	Allegan	5	5	<5	7	14
Alpena	District Health Department #4	7	0	<5	<5	<5
Antrim	Northwest Michigan	7	0	0	<5	<5
Arenac	Central Michigan	3	0	<5	<5	<5
Baraga	Western Upper Penninsula	8	0	<5	6	11
Barry	Barry-Eaton	5	<5	0	<5	<5
Bay	Bay	3	<5	7	26	33
Benzie	Benzie-Leelanau	7	0	<5	<5	<5
Berrien	Berrien	5	<5	7	19	23
Branch	Branch-Hillsdale-St. Joseph	5	<5	<5	5	10
Calhoun	Calhoun	5	<5	<5	10	29
Cass	Van Buren-Cass	5	<5	0	8	6
Charlevoix	Northwest Michigan	7	0	<5	<5	<5
Cheboygan	District Health Department #4	7	<5	<5	6	8
Chippewa	Chippewa	8	<5	<5	21	9
Clare	Central Michigan	6	<5	0	9	<5
Clinton	Mid-Michigan	1	<5	<5	<5	<5
Crawford	District Health Department #10	7	0	0	0	<5
Delta	Delta-Menominee	8	<5	<5	12	22
Detroit City	Detroit City	25	23	25	86	123
Dickinson	Dickinson-Iron	8	0	<5	<5	10
Eaton	Barry-Eaton	1	10	<5	17	17
Emmet	Northwest Michigan	7	0	<5	0	<5
Genesee	Genesee	3	13	29	80	116
Gladwin	Central Michigan	3	<5	<5	5	7
Gogebic	Western Upper Penninsula	8	<5	<5	7	9
Grand Traverse	Grand Traverse	7	9	<5	24	12
Gratiot	Mid-Michigan	1	<5	0	<5	<5
Hillsdale	Branch-Hillsdale-St. Joseph	1	<5	0	9	10
Houghton	Western Upper Penninsula	8	0	0	6	10
Huron	Huron	3	<5	0	<5	5
Ingham	Ingham	1	12	16	43	64
Ionia	Ionia	6	<5	<5	8	6
Iosco	District Health Department #2	3	<5	<5	<5	9
Iron	Dickinson-Iron	8	<5	<5	6	10
Isabella	Central Michigan	6	7	5	20	21
Jackson	Jackson	1	5	10	42	47
Kalamazoo	Kalamazoo	5	11	10	47	45
Kalkaska	District Health Department #10	7	<5	<5	<5	<5
Kent	Kent	6	18	16	66	57
Keweenaw	Western Upper Penninsula	8	0	0	0	0

County	LHJ	Region	Chronic HCV Cases, 18-29 years old (Current Quarter)	Chronic HCV, 18-29 years old (This Quarter 2017)	Chronic HCV Cases, 18-29 years old (YTD)	Chronic HCV Cases, 18-29 years old (YTD 2017)
Lake	District Health Department #10	6	0	0	0	0
Lapeer	Lapeer	3	<5	<5	13	13
Leelanau	Benzie-Leelanau	7	0	0	<5	<5
Lenawee	Lenawee	1	5	<5	12	13
Livingston	Livingston	1	8	7	16	21
Luce	Luce-Mackinac-Alger-Schoolcraft	8	0	0	<5	<5
Mackinac	Luce-Mackinac-Alger-Schoolcraft	8	0	0	<5	<5
Macomb	Macomb	2N	36	38	155	155
Manistee	District Health Department #10	7	<5	<5	<5	9
Marquette	Marquette	8	<5	<5	21	24
Mason	District Health Department #10	6	<5	<5	<5	8
Mecosta	District Health Department #10	6	<5	<5	<5	<5
Menominee	Delta-Menominee	8	<5	<5	<5	6
Midland	Midland	3	<5	6	18	15
Missaukee	District Health Department #10	7	<5	0	<5	<5
Monroe	Monroe	2S	5	6	19	50
Montcalm	Mid-Michigan	6	<5	<5	5	13
Montmorency	District Health Department #4	7	0	0	<5	<5
Muskegon	Muskegon	6	5	17	26	54
Newaygo	District Health Department #10	6	<5	<5	14	8
Oakland	Oakland	2N	33	31	93	130
Oceana	District Health Department #10	6	<5	0	<5	7
Ogemaw	District Health Department #2	3	0	<5	13	5
Ontonagon	Western Upper Peninsula	8	0	0	0	0
Osceola	Central Michigan	6	0	<5	<5	5
Oscoda	District Health Department #2	3	<5	<5	<5	5
Otsego	Northwest Michigan	7	<5	<5	7	6
Ottawa	Ottawa	6	<5	<5	16	20
Presque Isle	District Health Department #4	7	0	0	0	<5
Roscommon	Central Michigan	7	0	<5	<5	5
Saginaw	Saginaw	3	11	<5	41	24
St Clair	St Clair	2N	7	13	35	63
St Joseph	Branch-Hillsdale-St. Joseph	5	<5	<5	7	9
Sanilac	Sanilac	3	<5	<5	7	8
Schoolcraft	Luce-Mackinac-Alger-Schoolcraft	8	0	0	<5	0
Shiawassee	Shiawassee	1	<5	<5	9	7
Tuscola	Tuscola	3	0	<5	5	12
Van Buren	Van Buren-Cass	5	<5	<5	11	13
Washtenaw	Washtenaw	2S	6	7	19	39
Wayne	Wayne	2S	35	44	159	187
Wexford	District Health Department #10	7	0	<5	7	7
MDOC	Michigan Department of Corrections	MDOC	37	56	159	207
STATEWIDE			368	435	1561	1950

County	LHJ	Region	ED Admissions (Current Quarter)	ED Admissions (This Quarter 2017)	ED Admissions (YTD)	ED Admissions (YTD 2017)
Alcona	District Health Department #2	3	0	0	1	1
Alger	Luce-Mackinac-Alger-Schoolcraft	8	0	0	0	0
Allegan	Allegan	5	6	12	45	29
Alpena	District Health Department #4	7	0	0	1	3
Antrim	Northwest Michigan	7	0	0	0	1
Arenac	Central Michigan	3	1	0	3	2
Baraga	Western Upper Penninsula	8	1	0	2	0
Barry	Barry-Eaton	5	3	1	10	3
Bay	Bay	3	1	0	3	3
Benzie	Benzie-Leelanau	7	0	0	4	1
Berrien	Berrien	5	5	2	7	8
Branch	Branch-Hillsdale-St. Joseph	5	2	0	11	2
Calhoun	Calhoun	5	32	5	123	12
Cass	Van Buren-Cass	5	4	3	19	4
Charlevoix	Northwest Michigan	7	0	0	0	0
Cheboygan	District Health Department #4	7	0	0	1	1
Chippewa	Chippewa	8	0	6	2	18
Clare	Central Michigan	6	0	0	1	0
Clinton	Mid-Michigan	1	2	2	14	17
Crawford	District Health Department #10	7	1	2	4	3
Delta	Delta-Menominee	8	1	1	4	15
Detroit City	Detroit City	25	0	0	0	0
Dickinson	Dickinson-Iron	8	2	1	11	14
Eaton	Barry-Eaton	1	15	11	55	44
Emmet	Northwest Michigan	7	0	1	2	2
Genesee	Genesee	3	32	38	179	149
Gladwin	Central Michigan	3	1	0	2	2
Gogebic	Western Upper Penninsula	8	0	0	0	0
Grand Traverse	Grand Traverse	7	4	2	12	6
Gratiot	Mid-Michigan	1	0	0	5	7
Hillsdale	Branch-Hillsdale-St. Joseph	1	0	5	7	11
Houghton	Western Upper Penninsula	8	0	0	1	1
Huron	Huron	3	0	0	2	3
Ingham	Ingham	1	29	34	157	158
Ionia	Ionia	6	0	1	8	27
Iosco	District Health Department #2	3	1	4	8	9
Iron	Dickinson-Iron	8	0	0	0	0
Isabella	Central Michigan	6	0	0	2	1
Jackson	Jackson	1	26	28	76	128
Kalamazoo	Kalamazoo	5	60	47	239	63
Kalkaska	District Health Department #10	7	1	0	2	3
Kent	Kent	6	10	32	54	228
Keweenaw	Western Upper Penninsula	8	0	0	0	0
Lake	District Health Department #10	6	0	0	1	1

County	LHJ	Region	ED Admissions (Current Quarter)	ED Admissions (This Quarter 2017)	ED Admissions (YTD)	ED Admissions (YTD 2017)
Lapeer	Lapeer	3	4	4	27	9
Leelanau	Benzie-Leelanau	7	0	0	3	1
Lenawee	Lenawee	1	0	2	4	9
Livingston	Livingston	1	6	8	26	19
Luce	Luce-Mackinac-Alger-Schoolcraft	8	0	1	0	1
Mackinac	Luce-Mackinac-Alger-Schoolcraft	8	0	0	0	0
Macomb	Macomb	2N	47	49	197	225
Manistee	District Health Department #10	7	0	0	2	1
Marquette	Marquette	8	0	0	4	3
Mason	District Health Department #10	6	0	4	5	12
Mecosta	District Health Department #10	6	0	0	0	0
Menominee	Delta-Menominee	8	0	0	1	5
Midland	Midland	3	0	0	3	1
Missaukee	District Health Department #10	7	1	0	1	1
Monroe	Monroe	2S	5	3	21	19
Montcalm	Mid-Michigan	6	0	4	6	27
Montmorency	District Health Department #4	7	0	0	0	3
Muskegon	Muskegon	6	1	4	16	21
Newaygo	District Health Department #10	6	0	3	4	11
Oakland	Oakland	2N	116	103	433	169
Oceana	District Health Department #10	6	0	3	3	4
Ogemaw	District Health Department #2	3	3	0	3	4
Ontonagon	Western Upper Peninsula	8	0	0	0	0
Osceola	Central Michigan	6	0	1	0	3
Oscoda	District Health Department #2	3	0	0	2	0
Otsego	Northwest Michigan	7	0	0	0	0
Ottawa	Ottawa	6	13	4	24	39
Presque Isle	District Health Department #4	7	0	0	0	0
Roscommon	Central Michigan	7	2	0	7	1
Saginaw	Saginaw	3	10	4	22	10
St Clair	St Clair	2N	10	3	26	10
St Joseph	Branch-Hillsdale-St. Joseph	5	3	3	8	6
Sanilac	Sanilac	3	0	2	6	4
Schoolcraft	Luce-Mackinac-Alger-Schoolcraft	8	0	0	0	0
Shiawassee	Shiawassee	1	6	4	30	17
Tuscola	Tuscola	3	0	1	9	5
Van Buren	Van Buren-Cass	5	4	1	19	4
Washtenaw	Washtenaw	2S	8	14	33	31
Wayne	Wayne	2S	377	379	1457	762
Wexford	District Health Department #10	7	0	6	6	8
MDOC	Michigan Department of Corrections	MDOC	N/A	N/A	N/A	N/A
STATEWIDE			856	848	3486	2425

Technical Notes

Hepatitis C Virus Monthly Surveillance Report

Data in this report should be interpreted with caution and with acknowledgement of the limitations. Please direct any questions or comments regarding this report or the methods to the MDHHS Viral Hepatitis Unit (MDHHS-Hepatitis@michigan.gov)

Acute and Chronic HCV Infection

- Acute HCV and Chronic HCV data are obtained from the Michigan Disease Surveillance System ([MDSS](#)).
- Only completed cases meeting CDC/CSTE case definitions ([CSTE hepatitis case definitions](#)) are pulled for inclusion in the report. Included in the analysis are:
 - All Probable and Confirmed Acute HCV cases
 - Probable and Confirmed Chronic HCV cases between the ages of 18 and 29
- Cases are pulled no earlier than 30 days from the end of the reporting month (e.g. January data is extracted no earlier than March 1st). These data are not finalized and are subject to change throughout the year.
- It should be noted that CDC/CSTE case definitions for acute and chronic HCV were significantly changed in calendar year 2016 ([acute](#) and [chronic](#)). Therefore, increases in acute and chronic HCV cases in 2016 may be reflective of the change in case counting methods and not necessarily an increase in new cases.

For acute and chronic HCV acquisition, complete risk factor information is needed in order for MDHHS to identify trends in transmission related to injection drug use, health care transmission, and emerging risk factors. The temporality of chronic HCV infections is often unknown due to the lack of symptoms and awareness of the time of infection. Timely and comprehensive follow-up is needed in order to maximize the effectiveness of this report.

Regional Rates and Projections

- Year to date case rates are stratified by Michigan Public Health Preparedness Regions (MPHPR). A map of the MPHPRs can be accessed here ([Regional Map](#)).
- Cases from the Michigan Department of Corrections (MDOC) are removed from regional case rates.
- Rates are calculated using 2010 Census data for the population ([2010 US Census](#)).
- The projected number of cases in 2016 is calculated by multiplying the year to date cases by the proportion of months remaining in the year.

Syndromic Surveillance ED Admission Rates and Counts

- Emergency Department visit data possibly related to injection drug use are obtained through the Michigan Syndromic Surveillance System ([MSSS](#)).
- MSSS reporting is voluntary and not all hospitals participate in submitting ED data.
- The MSSS has been estimated to cover 83% of Michigan's population.

Though we believe our query to be relatively reliable it is certainly possible that ED-related injection drug use complaints may be missed by the query and/or that we may be counting some ED complaints that are unrelated to injection drug use. With these limitations in mind, MSSS data can be an effective tool for monitoring ED-trends in a population over time.

The following search terms are used to identify ED visits related to injection drug use:

OR: heroin heroine ivda ivdu idu "injection drug" opioid opiod opiate opioid suboxon fentan nolozone nalaxone naloxone narcan bupren speedball "speed ball" morphin "venous drug" methadone

NOT: epidural idual idue idus