



COVID-19 Weekly Trend Insights

Compiled on 11/20/2020



Executive Summary

COVID-19 in the News & Latest Trends

- The United States continues to observe large spikes in cases all across the country. The East North Central district was particularly impacted with a 35% increase in new cases across Illinois, Michigan, Ohio, and Wisconsin. Wisconsin alone saw a 31% increase in COVID-related deaths since the last report. Deaths related to COVID-19 reached over 250,000, representing an increase of 16% since the last report.
- COVID-19 demographic trends have remained consistent since our last report, 54% of the diagnosed patients are 50 years or older. Median age is 52, 16% of the diagnosed patients had at least one record of inpatient care for their diagnosis.
- Slides 15 and 16 look at the cities managing the highest volume of COVID-19 cases in the Inpatient setting vs. those that are outpatient.
- Treatment patterns remain consistent week over week, with Azithromycin and Dexamethasone continue to be most common treatments. However when looking at possible treatments after diagnosis, PRA observed use of Apixaban (10%) and Rivaroxaban (4%)

General Health Checks

- This week's report revisits the COVID-19 Impact on Oncology market trends. While screening rates have now rebounded and are exceeding 2019 levels in the most recent weeks, newly diagnosed patient rates are showing evidence of a new pattern of decline after a brief rebound
- Telemedicine trends are consistent since our last report, remaining well above 2019 levels but stabilizing week over week. Cardiology continues to be the highest utilizers of virtual visits.
- NATIONAL TRENDS: Despite the rise of COVID cases in recent weeks, national prescription trends continue to report 5% below 2019 thresholds. Minimal changes observed within different distribution channels, with Retail store activity continuing to drive the lower national prescription trends.
- Recovery for the majority of key therapies continue to remain stagnant among skyrocketing COVID cases and unemployment

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 - Select Elective Therapy Monitoring



COVID-19: Current Events & Latest Trends



COVID-19: Current Events



Timeline: Latest COVID-19 Developments



Nov 13th

COVID-19 fatality rate down 30% since April, study finds

The likelihood that a coronavirus infection will prove fatal has dropped by nearly a third since April due to improved treatment, researchers at the University of Washington's Institute for Health Metrics and Evaluation (IHME) said on Thursday.

Nov 17th

The U.S. Food and Drug Administration announces all data and information regarding the emergency use of drugs and vaccines will be made public, especially any potential COVID-19 vaccines.

The United States became the first nation worldwide since the pandemic began to surpass 10 million coronavirus infections, according to a Reuters tally on Sunday, as the third wave of the COVID-19 virus surges across the nation.
The grim milestone came on the same day as global coronavirus cases exceeded 50 million.

Nov 9th

Moderna Inc's experimental vaccine is 94.5% effective in preventing COVID-19 based on interim data from a late-stage trial, the company said on Monday, becoming the second U.S. drugmaker to report results that far exceed expectations.

Together with Pfizer Inc's vaccine, which is also more than 90% effective, the United States could have two vaccines authorized for emergency use in December with as many as 60 million doses of vaccine available this year.

Nov 16th

FDA approves first COVID-19 test kit for home use

The U.S. Food and Drug Administration approved the first COVID-19 self-testing kit for home use that provides results within 30 minutes.

The single-use test, made by Lucira Health, has been given emergency use authorization for home use with self-collected nasal swab samples in individuals aged 14 and older who are suspected of COVID-19 by their health care provider.

Nov 18th

Sources

- <https://www.pharmalive.com/covid-19-fatality-rate-down-30-since-april-study-finds/>
- <https://www.pharmalive.com/u-s-becomes-first-nation-to-cross-10-million-covid-19-cases-as-third-wave-of-infections-surges/>
- <https://www.pharmalive.com/moderna-covid-19-vaccine-success-gives-world-more-hope/>
- <https://www.pharmalive.com/fda-to-make-emergency-use-authorization-data-public-for-covid-19-vaccines/>
- <https://www.pharmalive.com/fda-approves-first-covid-19-test-kit-for-home-use/>



COVID-19 INSIGHTS

Confirmed Cases Worldwide

- Global cases continue to rise as COVID-19 cases surge despite many countries implementing more restrictions to reduce new cases.
- Nineteen countries have observed an increase of over 100,000 new cases in the last two weeks, compared to sixteen countries on our last report.
- Since our last COVID-19 insights report on November 5th, global cases have increased by approximately 7.7 million or 16%.

Confirmed Cases

56,167,545

Deaths

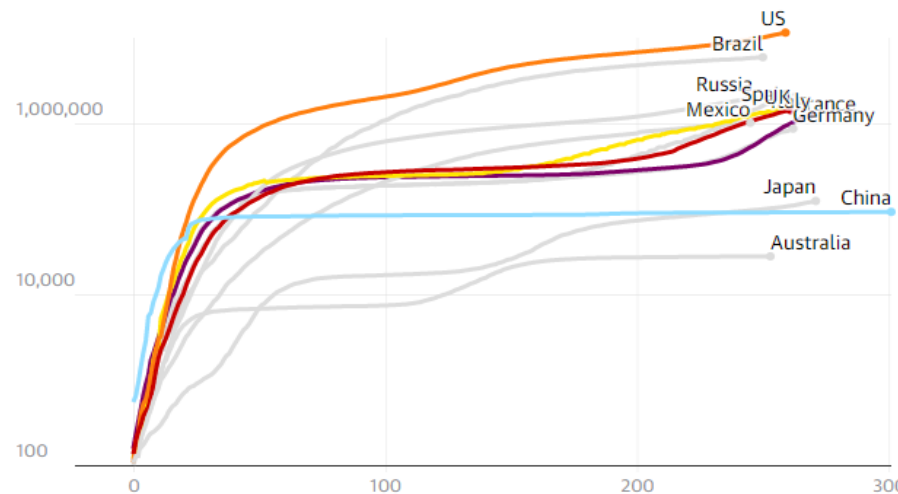
1,342,390

Recovered

36,348,372

Confirmed cases of Covid-19 for selected countries

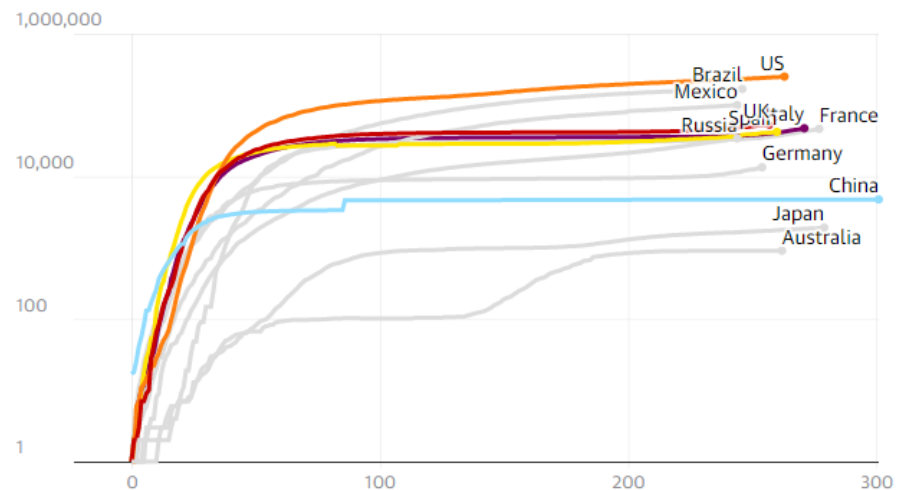
Showing the number of cases since the day of the 100th case, using a log scale. Data correct at 04.59 UTC 19 November



Source: Johns Hopkins CSSE Note: The CSSE states that its numbers rely upon publicly available data from multiple sources, which do not always agree

Confirmed deaths of Covid-19 for selected countries

Showing the number of deaths since the day of the first one, using a log scale. Data correct at 04.59 UTC 19 November



Source: Johns Hopkins CSSE Note: The CSSE states that its numbers rely upon publicly available data from multiple sources, which do not always agree



COVID-19 INSIGHTS

Confirmed Cases in the USA

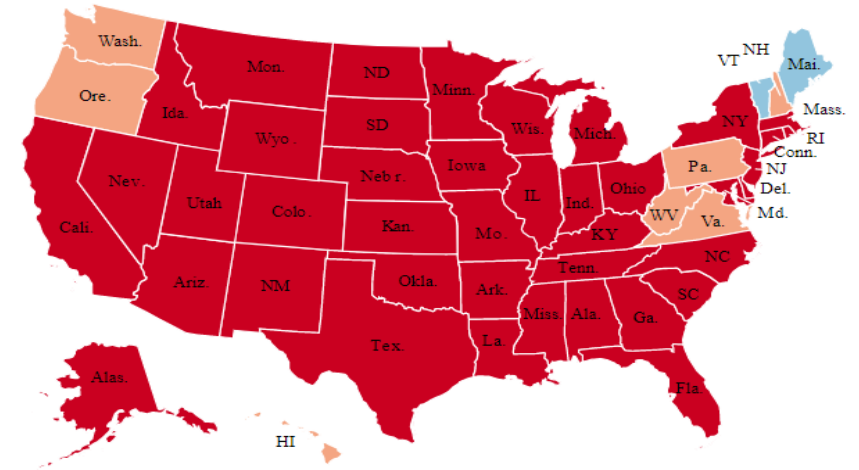
- The United States continues to observe large spikes in cases all across the country.
- The East North Central district was particularly impacted with a 35% increase in new cases across Illinois, Michigan, Ohio, and Wisconsin. Wisconsin alone saw a 31% increase in COVID-related deaths since the last report.
- Deaths related to COVID reached over 250,000, representing an increase of 16% since the last report.

Confirmed Cases
11,656,761

Deaths
251,711

Number of confirmed cases per 100,000 Americans

- Fewer than 500 per 100k
- At least 500 per 100k
- At least 1,000 per 100k
- At least 2,500 per 100k



Last updated: 19 Nov 6:25pm EST

Source: Maps are updated daily at 12am ET using state-level and county-level case and death figures reported from Johns Hopkins University. State populations were provided by Johns Hopkins CSSE.

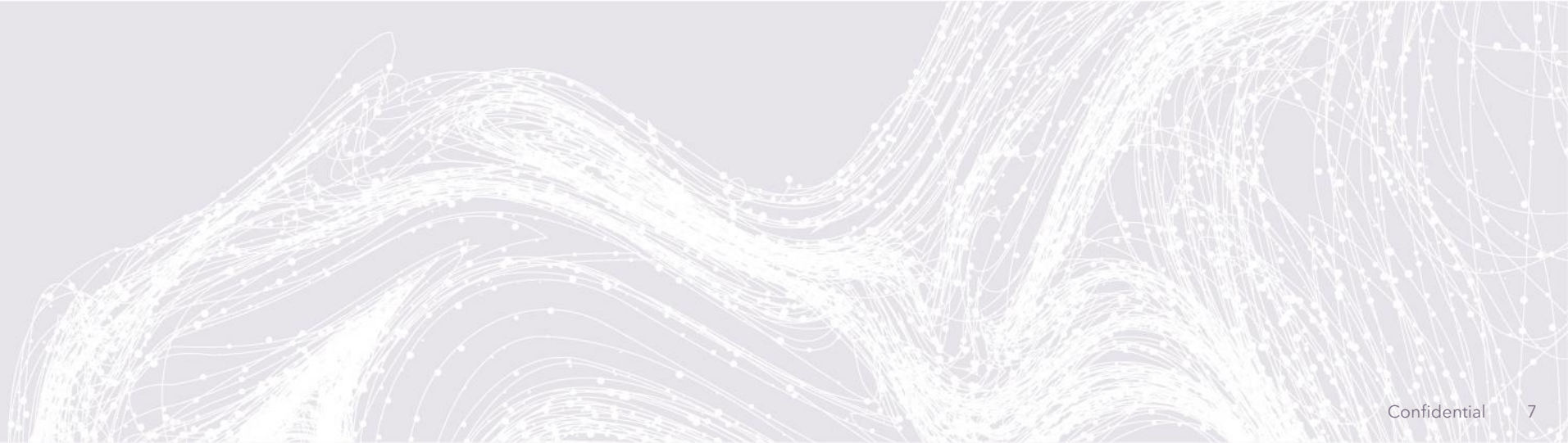
State/Territory	Tests	Test % Change	Confirmed Cases	Case % Change	Deaths	Death % Change
Texas	9,522,343	13%	1,048,383	13.2%	19,883	9%
California	21,418,543	12%	1,047,789	11.5%	18,360	3%
Florida	6,710,260	7%	892,352	10.1%	17,949	5%
Illinois	9,359,227	16%	606,771	36.7%	11,468	12%
New York	17,191,129	14%	574,072	11.3%	26,225	1%
Georgia	3,975,069	9%	393,890	7.5%	9,065	6%
Wisconsin	2,387,764	12%	350,665	36.3%	2,925	31%
North Carolina	4,731,171	13%	320,862	13.5%	4,898	9%
Ohio	5,370,905	16%	318,828	38.5%	5,827	7%
Michigan	5,922,691	16%	303,058	42.8%	8,573	10%



COVID-19: Overview of PRA Real World Data



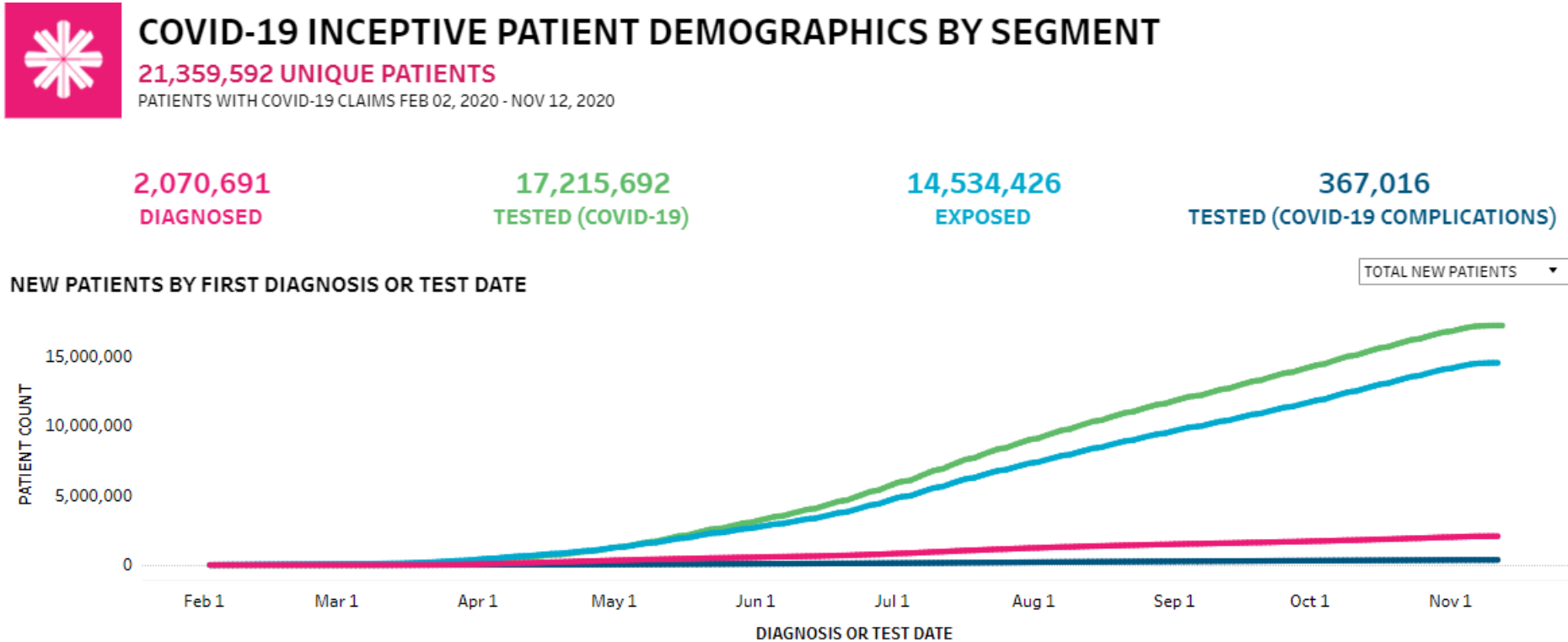
COVID-19 Patient Monitoring: Demographics & Treatments





PRA US Patient Real World Data COVID-19 Infection Trends

Through patient activity observed for diagnosis, testing, exposure or symptoms of Covid-19 infection, PRA is tracking about 21.4 million patients overall and 2.07 million diagnosed patients in its U.S. real world data during the time period Feb 2 to Nov 12, 2020. Patients could be reported in multiple status categories based on claims captured and mapped to status



TOTAL DIAGNOSED PATIENT VOLUMES BY WEEK ENDING DATE

11-Jul	18-Jul	25-Jul	1-Aug	8-Aug	15-Aug	22-Aug	29-Aug	5-Sep	12-Sep	19-Sep	26-Sep	3-Oct	10-Oct	17-Oct	24-Oct	31-Oct	7-Nov	14-Nov
101,321	100,209	92,031	83,497	73,190	64,785	57,597	54,135	51,763	44,307	48,551	49,663	54,024	62,364	66,811	71,340	75,607	64,917	49,282



PRA US Patient Real World Data COVID-19 Diagnosed Patients

PRA is tracking 283,347 Covid-19 patients during the most recent 4-week time period of Oct 18- Nov 14, 2020

Amongst the Covid-19 diagnosed patients:

- 54% of the diagnosed patients are 50 years or older
- Median age is 52
- 16% of the diagnosed patients had at least one record of inpatient care for their diagnosis.



COVID-19 CLAIMS OVERVIEW

283,347 UNIQUE PATIENTS DIAGNOSED
PATIENTS WITH COVID-19 CLAIMS OCT 18, 2020 - NOV 14, 2020



CLEAR PATIENT SELECTION

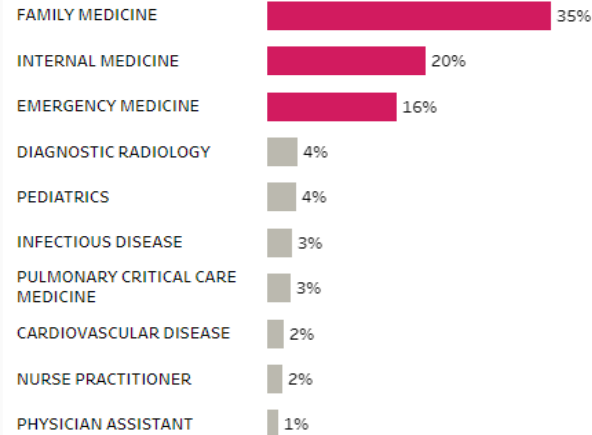
283,347
DIAGNOSED

2,202,182
TESTED (COVID-19)

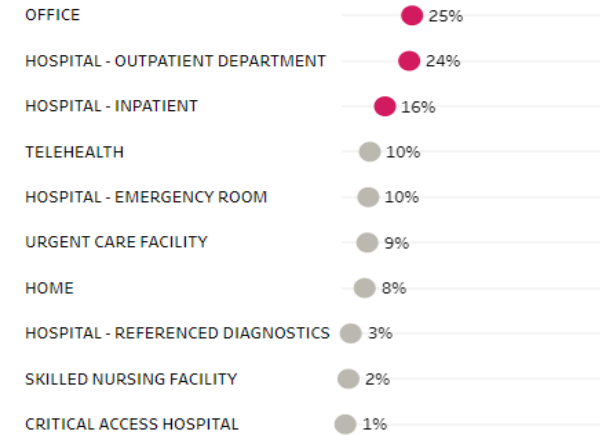
2,000,997
EXPOSED

31,121
TESTED (COVID-19 COMPLICATIONS)

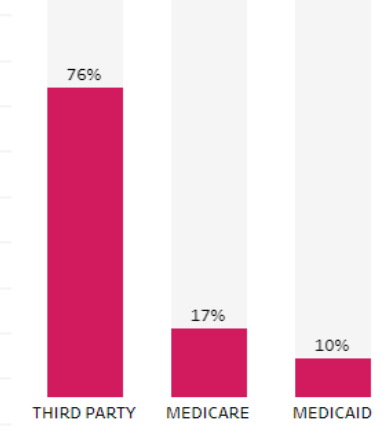
TOP SPECIALTIES PERCENT OF PATIENTS



TOP PLACES OF SERVICE PERCENT OF PATIENTS



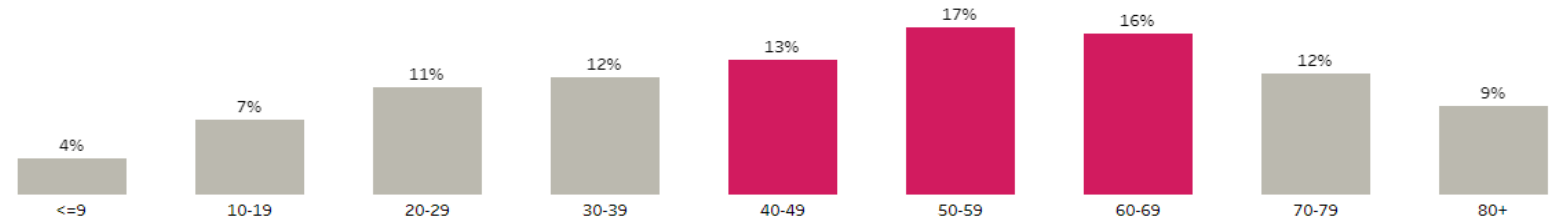
PAYER TYPE PERCENT OF PATIENTS



*Patients could be covered by more than one payer type

PATIENT AGE PERCENT OF PATIENTS

50 MEAN 52 MEDIAN



PATIENT GENDER PERCENT OF PATIENTS

55%
FEMALE

45%
MALE



Observed Drug Use **Within +/- 30 Days** of COVID-19 Diagnosis

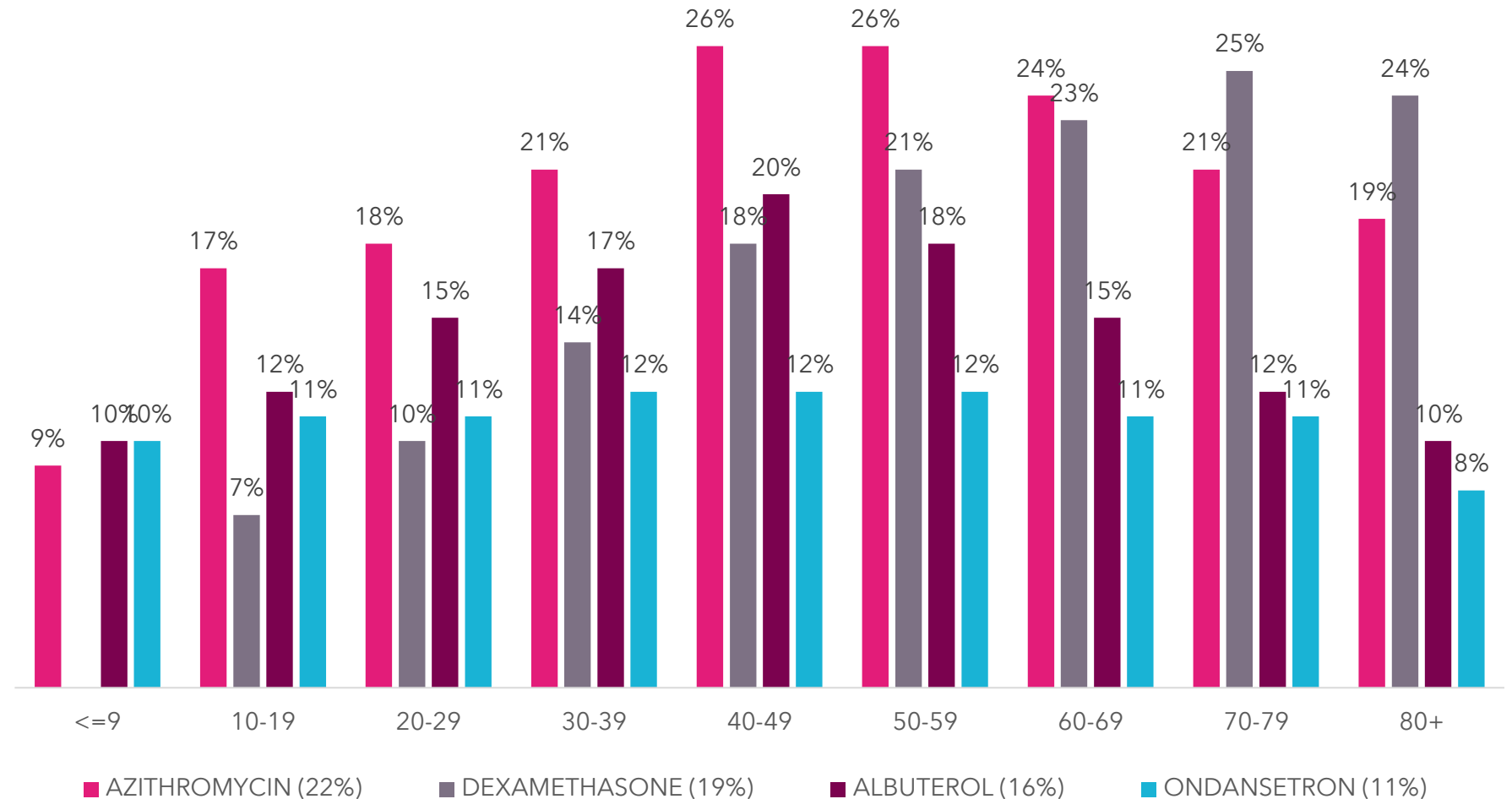
PRA evaluated Covid-19 diagnosed patients for observed treatments within a 30-day window of diagnosis.

Over the most recent 4-week period of Oct 18-Nov 14, **31% of these patients had an observed steroid use**

Covid-19 diagnosed patients within +/- 30 days of diagnosis

AZITHROMYCIN	22%
DEXAMETHASONE	19%
ALBUTEROL	16%
ONDANSETRON	11%
BENZONATATE	10%
INFLUENZA VACCINE	8%
PREDNISONE	8%
SALINE	6%
AMOXICILLIN	6%
METHYLPREDNISOLONE	5%
DOXYCYCLINE	5%
KETOROLAC	4%
LOW OSMOLAR CONTRAST M...	4%
PROMETHAZINE HCL	4%
CEFTRIAZONE	4%
ACETAMINOPHEN	3%
GUAIFENESIN	3%
FLUTICASONE	3%
IBUPROFEN	3%
FAMOTIDINE	3%
APIXABAN	3%

Observed Drug Use by Age (within +/- 30 days of Covid-19 diagnosis) N= 91,944



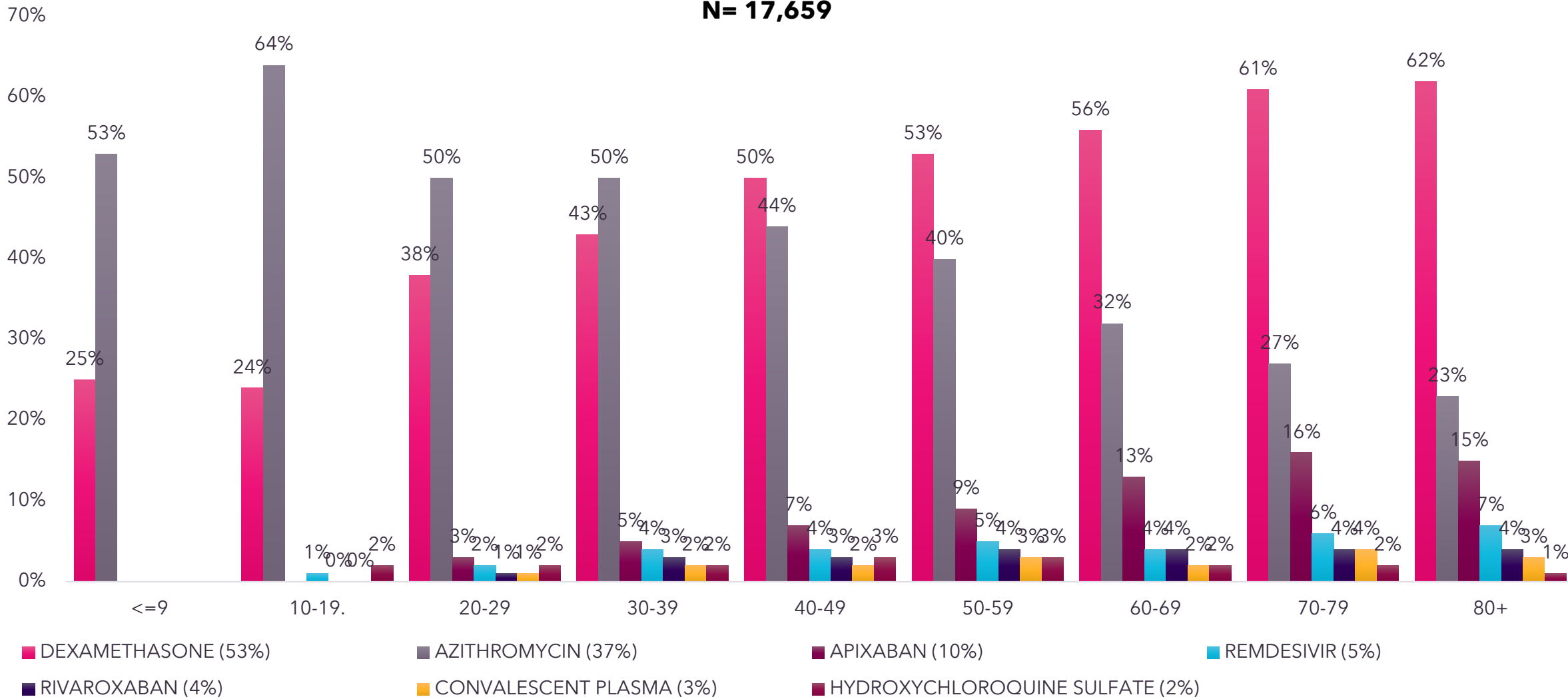


Possible Treatments within 30 Days after COVID-19 Diagnosis

PRA evaluated Covid-19 diagnosed patients for possible treatments within a 30-day window after diagnosis.

Over the most recent 4-week period of Oct 18-Nov 14, Azithromycin and Dexamethasone continue to be most common treatments. However when looking at possible treatments after diagnosis, PRA observed use of Apixaban (10%) and Rivaroxaban (4%)

Possible Treatments by Age (within 30 days after Covid-19 diagnosis) N= 17,659

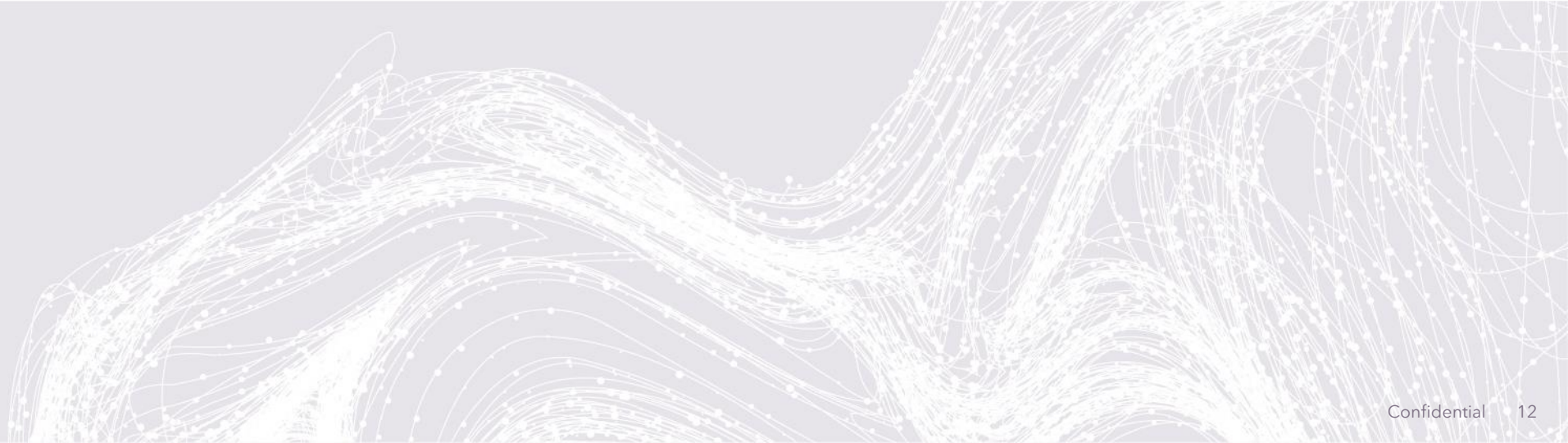




COVID-19: Overview of PRA Real World Data



COVID-19 Patient Monitoring: Geographic Trends by Care Setting



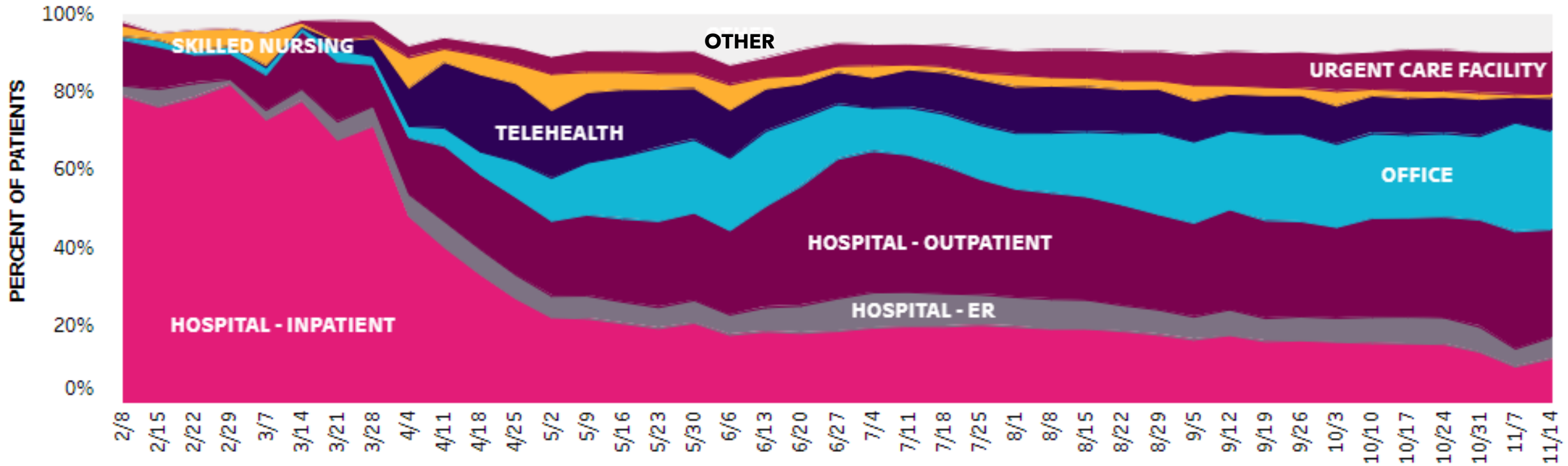


Impact of changing patient demographics of Covid-19 diagnosed patients on location of care

Currently, more than **50%** of Covid-19 patients are receiving diagnosis at **outpatient and office settings**.

RECENT 4- WEEK AVERAGE	
HOSPITAL INPATIENT	13%
HOSPITAL- ER	6%
HOSPITAL OUTPATIENT	27%
OFFICE	24%
TELEHEALTH	9%
SKILLED NURSING	1%
URGENT CARE FACILITY	11%
OTHER	9%

LOCATION OF COVID-19 DIAGNOSIS BY WEEK PLACE OF CARE





ER and Inpatient Hospital - Top 50 Cities

PRA is tracking patients diagnosed with Covid-19 at Emergency Room or Inpatient Hospital settings to identified cities with high patient volume of severe cases. In the most recent 2-week period, **Sioux Falls, Chicago, Cleveland, and Dallas** continue to be the top cities with high Covid-19 diagnosed patients at ER or inpatient hospital settings.

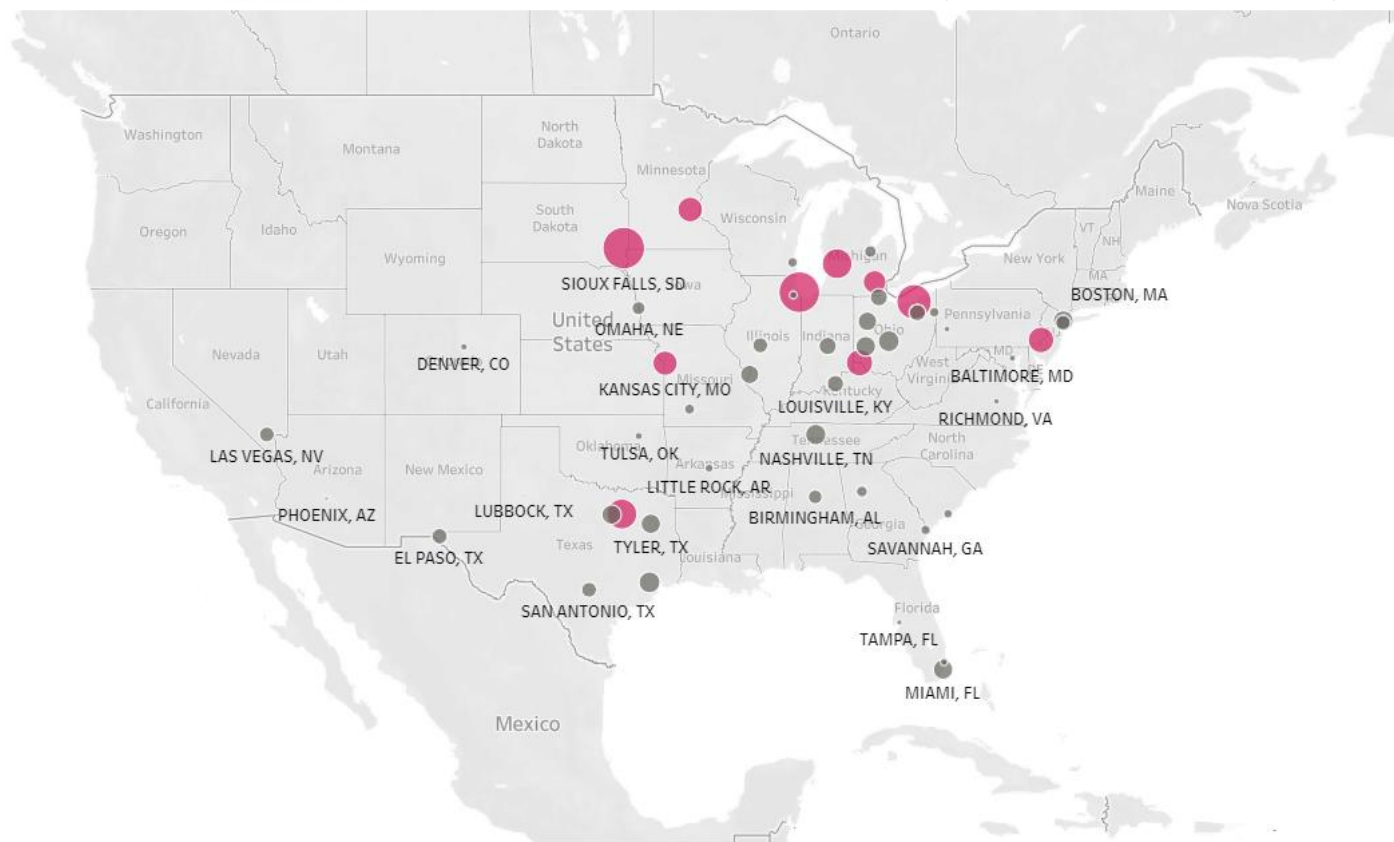


TOP 50 CITIES

PATIENTS DIAGNOSED WITH COVID-19 | INPATIENT/ER

NOV 01, 2020 - NOV 14, 2020 **21,428 PATIENTS**

• Top 10 cities are highlighted in pink



CITY, STATE	PATIENTS
SIOUX FALLS, SD	690
CHICAGO, IL	663
CLEVELAND, OH	506
DALLAS, TX	409
GRAND RAPIDS, MI	407
CINCINNATI, OH	340
PHILADELPHIA, PA	328
MINNEAPOLIS, MN	312
KANSAS CITY, MO	306
ANN ARBOR, MI	282
HOUSTON, TX	255
COLUMBUS, OH	254
NASHVILLE, TN	247
NEW YORK, NY	241
DAYTON, OH	237
MIAMI, FL	235
TYLER, TX	234
FORT WORTH, TX	232
LIMA, OH	224
SAINT LOUIS, MO	221
INDIANAPOLIS, IN	208
TOLEDO, OH	207
LOUISVILLE, KY	201
AKRON, OH	198
EL PASO, TX	190
SPRINGFIELD, IL	186
LAS VEGAS, NV	185
SAN ANTONIO, TX	185
BROOKLYN, NY	183
BIRMINGHAM, AL	173
OMAHA, NE	169
SAGINAW, MI	157

PATIENT COUNT

• 108

● 200

● 300

● 400

● 500

● 600

● 690



Outpatient - Top 50 Cities

PRA is tracking patients diagnosed with Covid-19 at Outpatient settings to identify cities with high patient volumes of Covid-19 cases. In the most recent 2-week period, **Minneapolis, Miami, Fort Wayne, Grand Rapids, and Chicago** were the top 5 cities with high Covid-19 diagnosed patients at outpatient care settings.



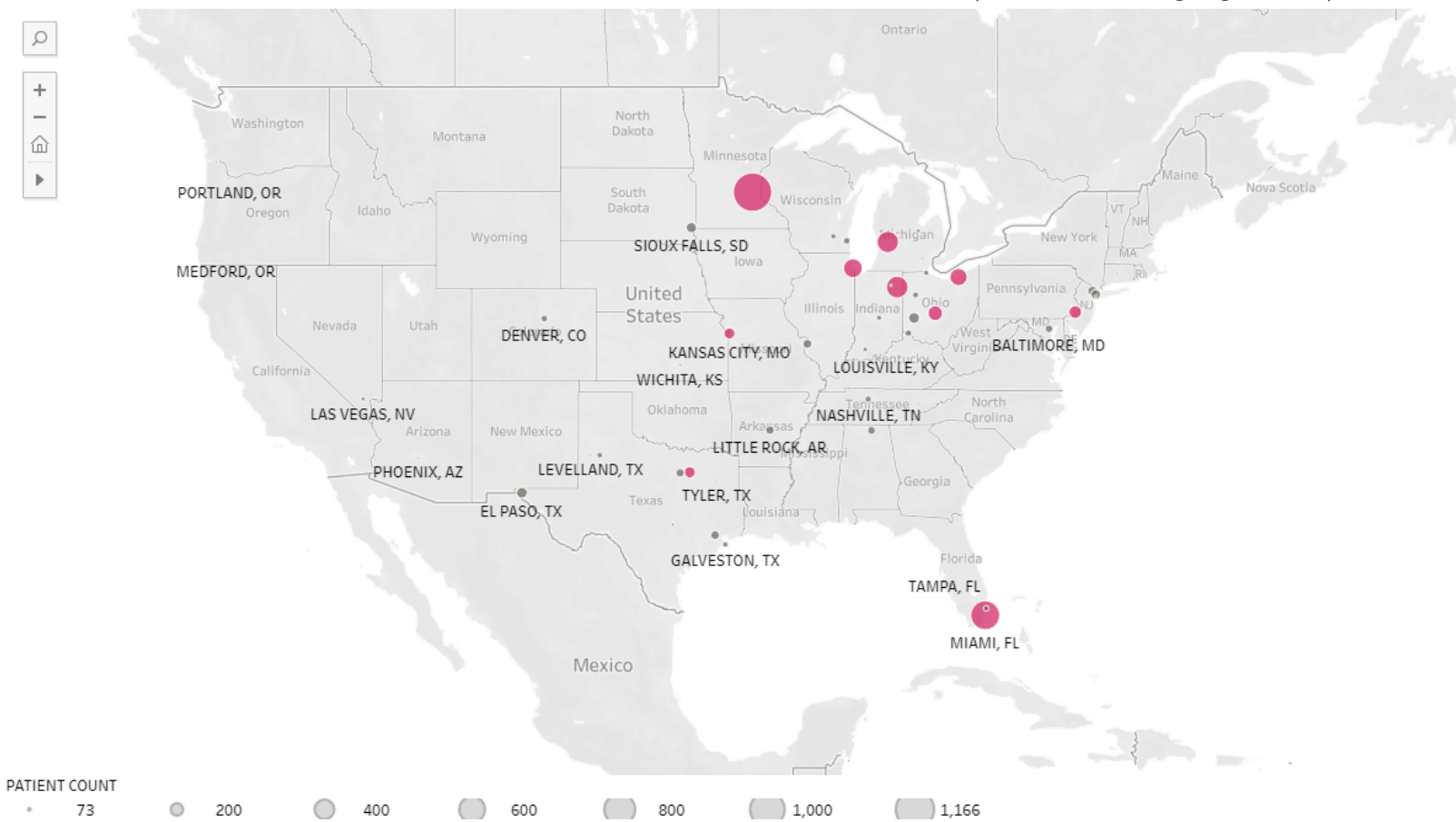
TOP 50 CITIES

PATIENTS DIAGNOSED WITH COVID-19 | HOSPITAL OUTPATIENT

CARE SETTING
HOSPITAL OUTPATIENT

NOV 01, 2020 - NOV 14, 2020 23,628 PATIENTS

• Top 10 cities are highlighted in pink



CITY, STATE	PATIENTS
MINNEAPOLIS, MN	1,166
MIAMI, FL	691
FORT WAYNE, IN	422
GRAND RAPIDS, MI	410
CHICAGO, IL	336
CLEVELAND, OH	293
COLUMBUS, OH	237
PHILADELPHIA, PA	197
DALLAS, TX	170
KANSAS CITY, MO	167
DAYTON, OH	163
EL PASO, TX	162
SIOUX FALLS, SD	156
NEW YORK, NY	142
PATERSON, NJ	140
SAINT LOUIS, MO	134
LITTLE ROCK, AR	131
HOUSTON, TX	130
FORT WORTH, TX	127
HUNTSVILLE, AL	121
BALTIMORE, MD	120
DENVER, CO	107
MILWAUKEE, WI	107
CINCINNATI, OH	105
NASHVILLE, TN	105
LIMA, OH	100
GALVESTON, TX	98
LUBBOCK, TX	98
FORT LAUDERDALE, FL	96
WATERTOWN, WI	96
INDIANAPOLIS, IN	94
TOLEDO, OH	94



Office / Telehealth - Top 50 Cities

PRA is tracking patients diagnosed with Covid-19 at an office or telehealth setting to identify cities with high patient volume of Covid-19 cases. In the most recent 2-week period, **Flushing, Cincinnati, Mesa, El Paso, and Eau Claire** were the top 5 cities with high Covid-19 diagnosed patients at an office or telehealth setting.



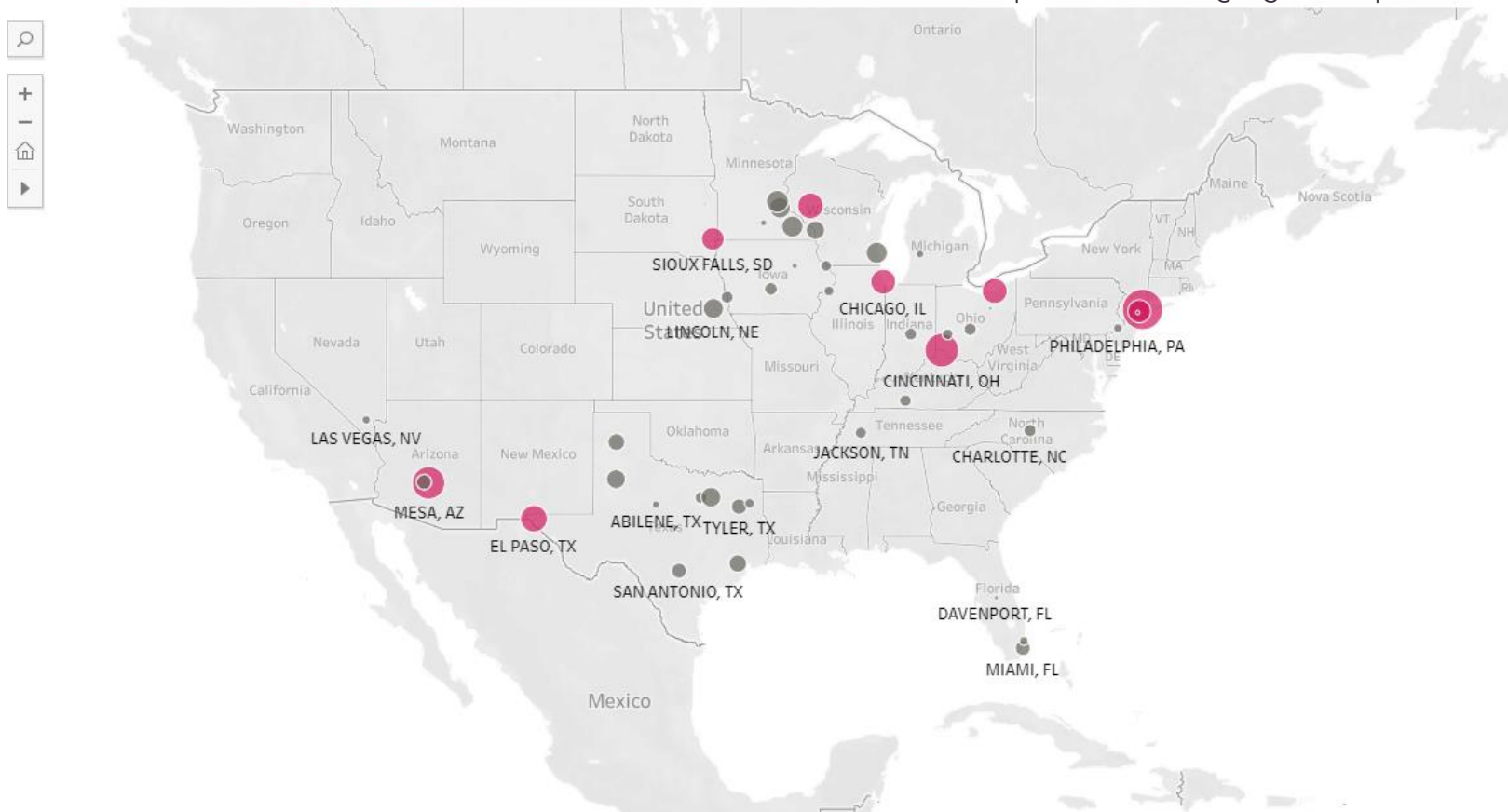
TOP 50 CITIES

PATIENTS DIAGNOSED WITH COVID-19 | OFFICE/TELEHEALTH

CARE SETTING
OFFICE/TELEHEALTH

NOV 01, 2020 - NOV 14, 2020 37,076 PATIENTS

Top 10 cities are highlighted in pink



CITY, STATE	PATIENTS
FLUSHING, NY	674
CINCINNATI, OH	496
MESA, AZ	465
EL PASO, TX	343
EAU CLAIRE, WI	324
CLEVELAND, OH	313
CHICAGO, IL	310
BROOKLYN, NY	271
SIoux FALLS, SD	271
NEW YORK, NY	270
MINNEAPOLIS, MN	261
ROCHESTER, MN	248
MILWAUKEE, WI	247
ROSEMOUNT, MN	241
LINCOLN, NE	232
DALLAS, TX	227
LUBBOCK, TX	214
ONALASKA, WI	209
HOUSTON, TX	197
AMARILLO, TX	189
TYLER, TX	174
SAN ANTONIO, TX	169
PHOENIX, AZ	168
MIAMI, FL	167
DES MOINES, IA	146
COLUMBUS, OH	143
ASHEBORO, NC	142
OMAHA, NE	141
INDIANAPOLIS, IN	140
FORT WORTH, TX	139
BOWLING GREEN, KY	137
JACKSON, TN	134

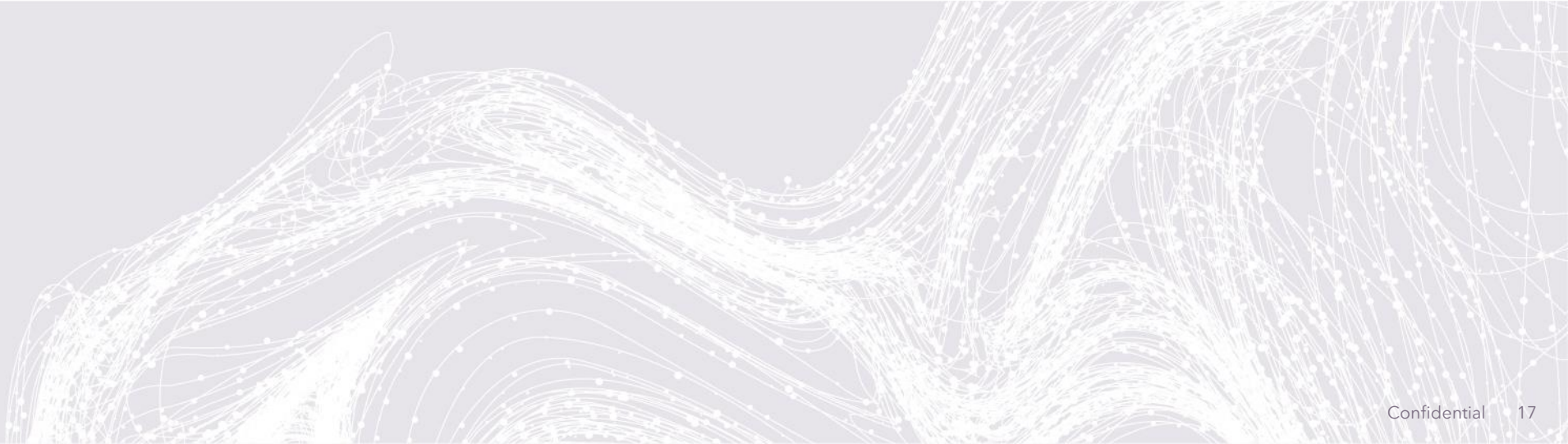
PATIENT COUNT
• 86 ● 200 ● 400 ● 674



COVID-19: Bonus Update

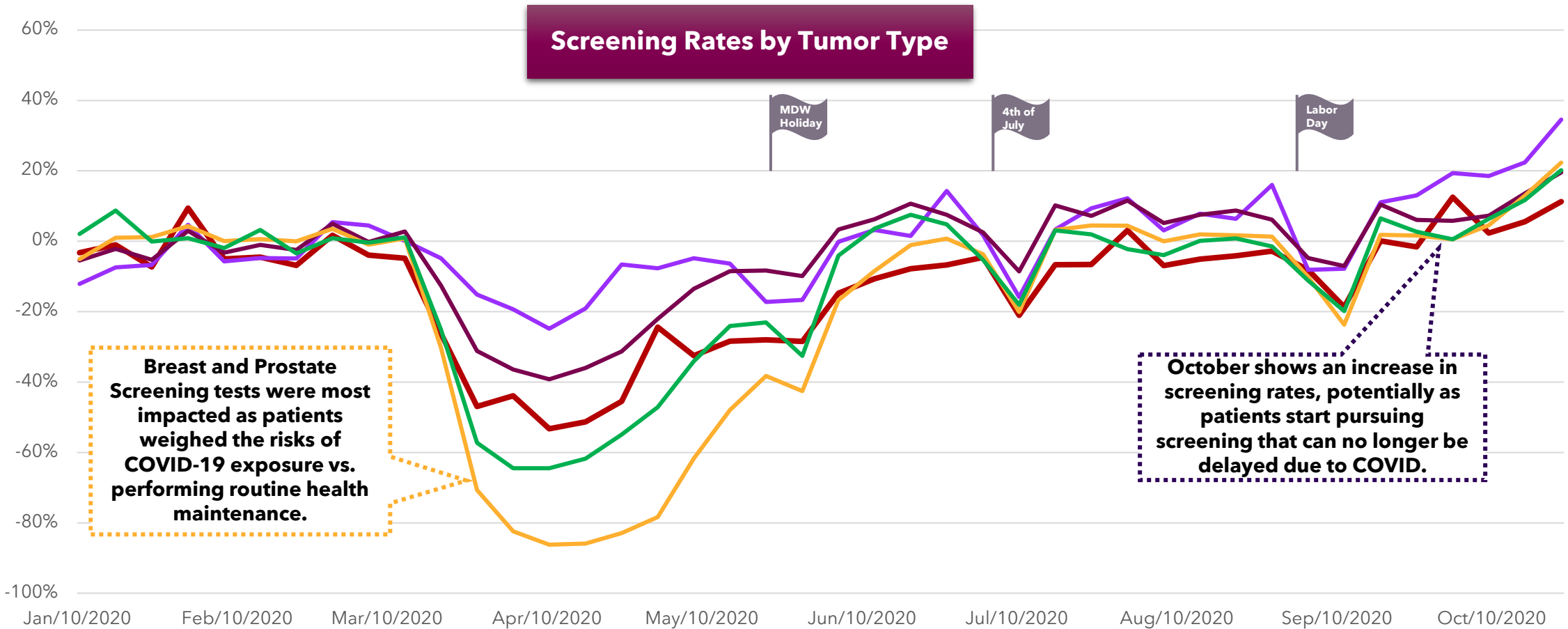


COVID-19 Impact to Oncology Trends YTD 2020 (through October 23rd)





Oncology specific screenings have begun to exceed volumes from the same time period in 2019 with a recent lift-off in October.



Breast and Prostate Screening tests were most impacted as patients weighed the risks of COVID-19 exposure vs. performing routine health maintenance.

October shows an increase in screening rates, potentially as patients start pursuing screening that can no longer be delayed due to COVID.

HEMATOLOGIC (HEM) category represents blood panels to test for CML and Multiple Myeloma due to shared screening diagnostic procedures

— HEM — NSCLC — PANCREATIC — PRIMARY BREAST — PROSTATE

Index = Current Week vs. 12 Week Rolling Average (from the same time period in 2019)
 Screening Rate= # of tests ordered and includes both surgical and lab procedures

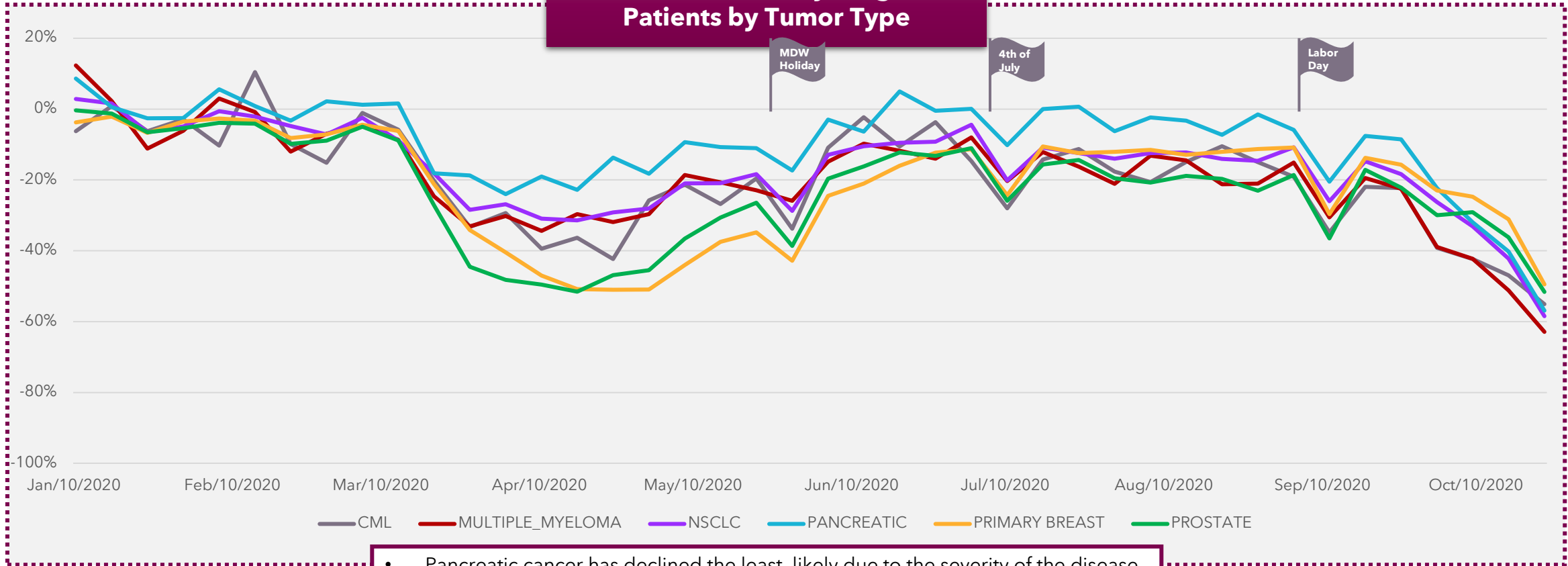
- Oncology Markets of Interest:**
- **Hematological Malignancies (Blood Cancers):** Chronic Myeloid Leukemia (CML), Multiple Myeloma (MM)
 - **Solid Tumors:** Breast, Non-Small Cell Lung Cancer (NSCLC), Pancreatic, Prostate



Newly Diagnosed rates were beginning to stabilize since stay at home orders were issued in March, however, in recent weeks the start of a new downward trend is beginning to reappear.



Distribution of Newly Diagnosed Patients by Tumor Type

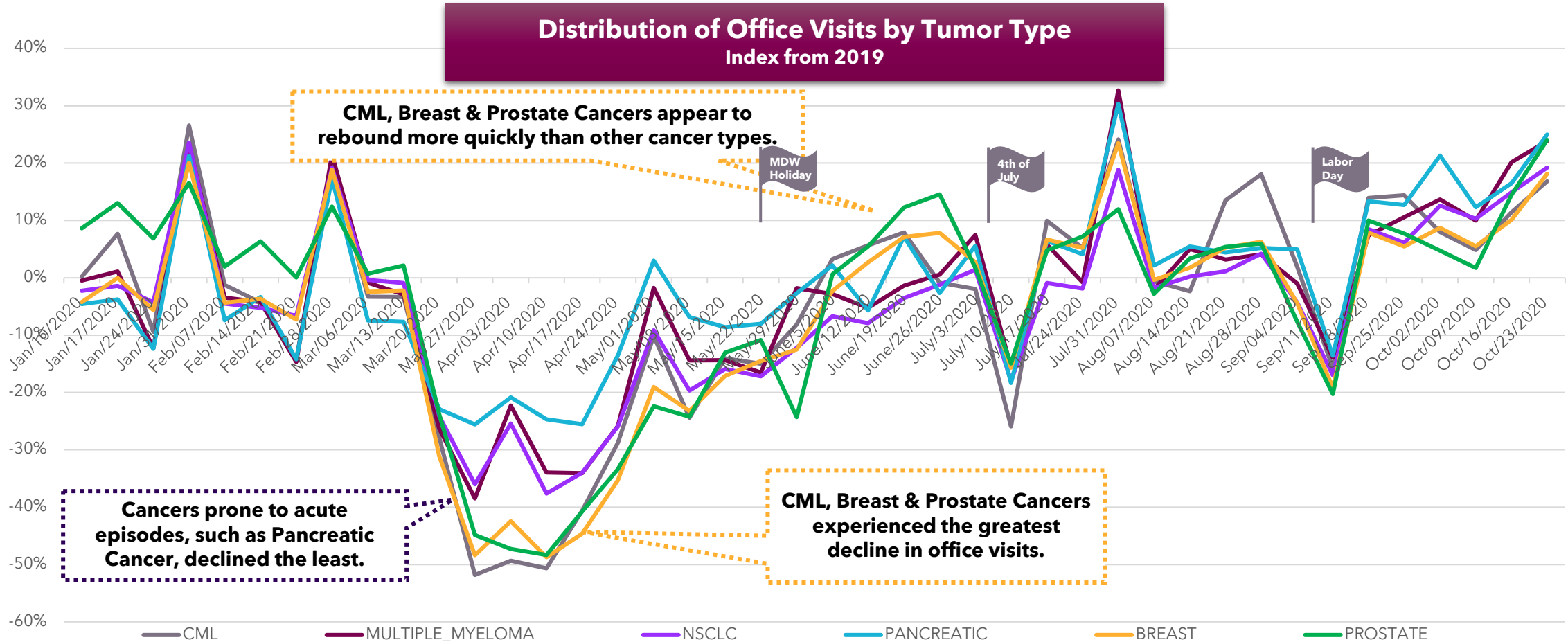


Oncology Markets of Interest:

- **Hematological Malignancies (Blood Cancers):** Chronic Myeloid Leukemia (CML), Multiple Myeloma (MM)
- **Solid Tumors:** Breast, Non-Small Cell Lung Cancer (NSCLC), Pancreatic, Prostate



Oncology patient visits with HCPs during the pandemic varied greatly by tumor type. As time progresses, volume trends between tumor types have less variation and have begun to return to or exceed pre-COVID volumes.



* Office visits excludes telemedicine and home health visits

Oncology Markets of Interest:

- **Hematological Malignancies (Blood Cancers):** Chronic Myeloid Leukemia (CML), Multiple Myeloma (MM)
- **Solid Tumors:** Breast, Non-Small Cell Lung Cancer (NSCLC), Pancreatic, Prostate



General Market Pulse



Care Delivery Trends: Telemedicine & Office Visits



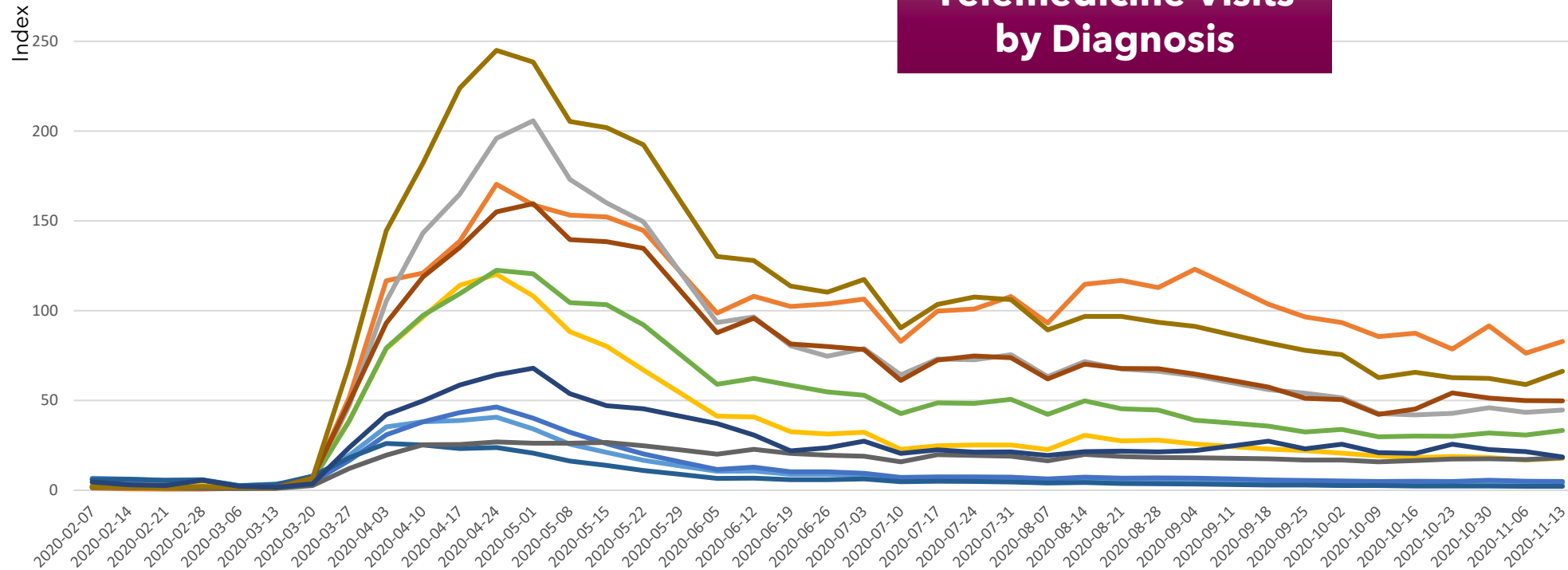
National / Channel Summaries & Elective Therapy Monitoring



Telemedicine Visits: Diagnosis



Telemedicine Visits by Diagnosis

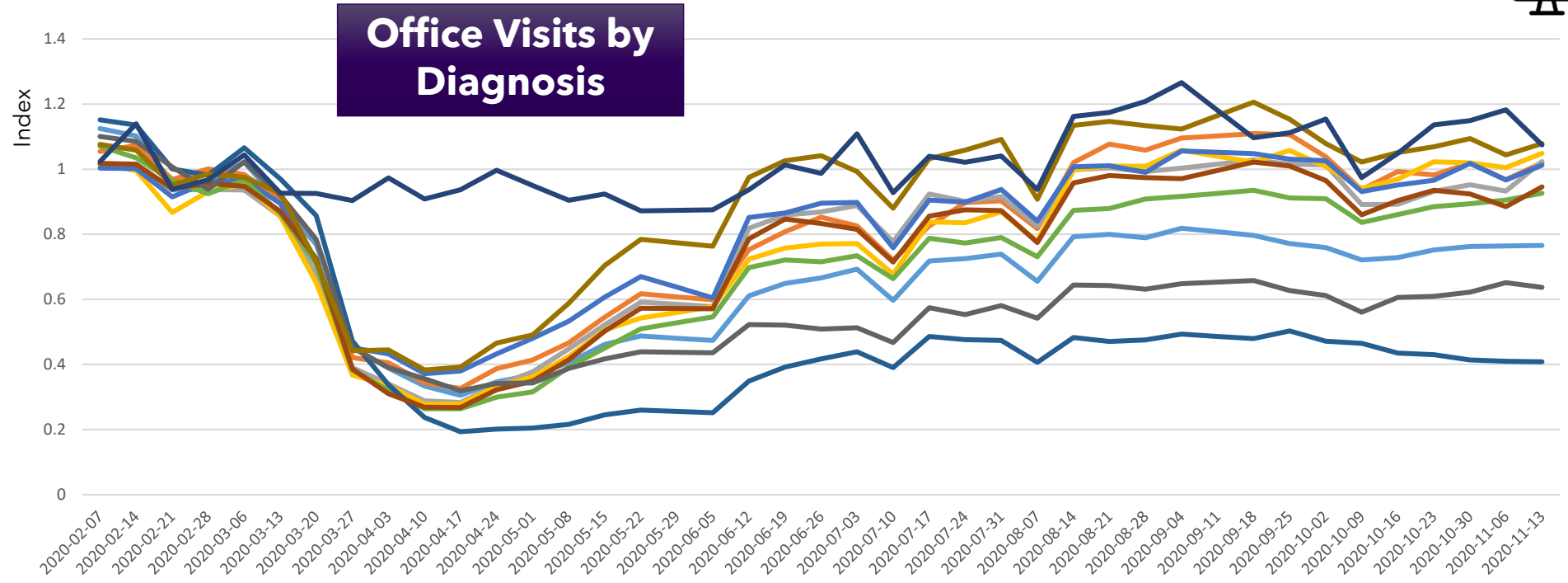


- While telemedicine visit remain WELL above 2019 levels, they have leveled off or declined from the COVID-19 peak for most diagnoses.
- Neoplasms and diseases of the blood currently have the highest relative increase in use of telemedicine.
- Respiratory, genitourinary and infectious/parasitic diseases initially spiked, but have since returned to pre-COVID levels.

- CERTAIN INFECTIOUS AND PARASITIC DISEASES
- DISEASES OF THE BLOOD AND BLOOD-FORMING ORGANS AND CERTAIN DISORDERS INVOLVING THE IMMUNE MECHANISM
- DISEASES OF THE CIRCULATORY SYSTEM
- DISEASES OF THE DIGESTIVE SYSTEM
- DISEASES OF THE GENITOURINARY SYSTEM
- DISEASES OF THE NERVOUS SYSTEM
- DISEASES OF THE RESPIRATORY SYSTEM
- ENDOCRINE, NUTRITIONAL AND METABOLIC DISEASES
- MENTAL AND BEHAVIORAL DISORDERS
- NEOPLASMS
- PREGNANCY, CHILDBIRTH AND THE PUERPERIUM



Office Visits: Diagnosis



- Office visits gradually increased from their lowest point during the week of March 27 through mid-September.
- As of the week of November 13, the only diagnosis groups at or above 2019 levels were pregnancy/child birth, circulatory systems neoplasms, digestive system and genitourinary.
- Diseases of the respiratory system and mental and behavioral help, which bottomed out during the week of April 17, have improved but still remain +40% below 2019 levels.

Index = Current Week divided by the 12 Week Rolling Average (from the same time period in 2019)

- An index of 1 means the current week has the same number of claims as the 12 week rolling average from 2019 (100% of 2019 volume).
- An index of 5 means there are 5 times as many claims in the current week as in the 12 week rolling average from 2019 (500% of 2019 volume).
- An index of 0.5 means the current week had 50% fewer claims than the 12 week rolling average from 2019 (50% of 2019 volume).

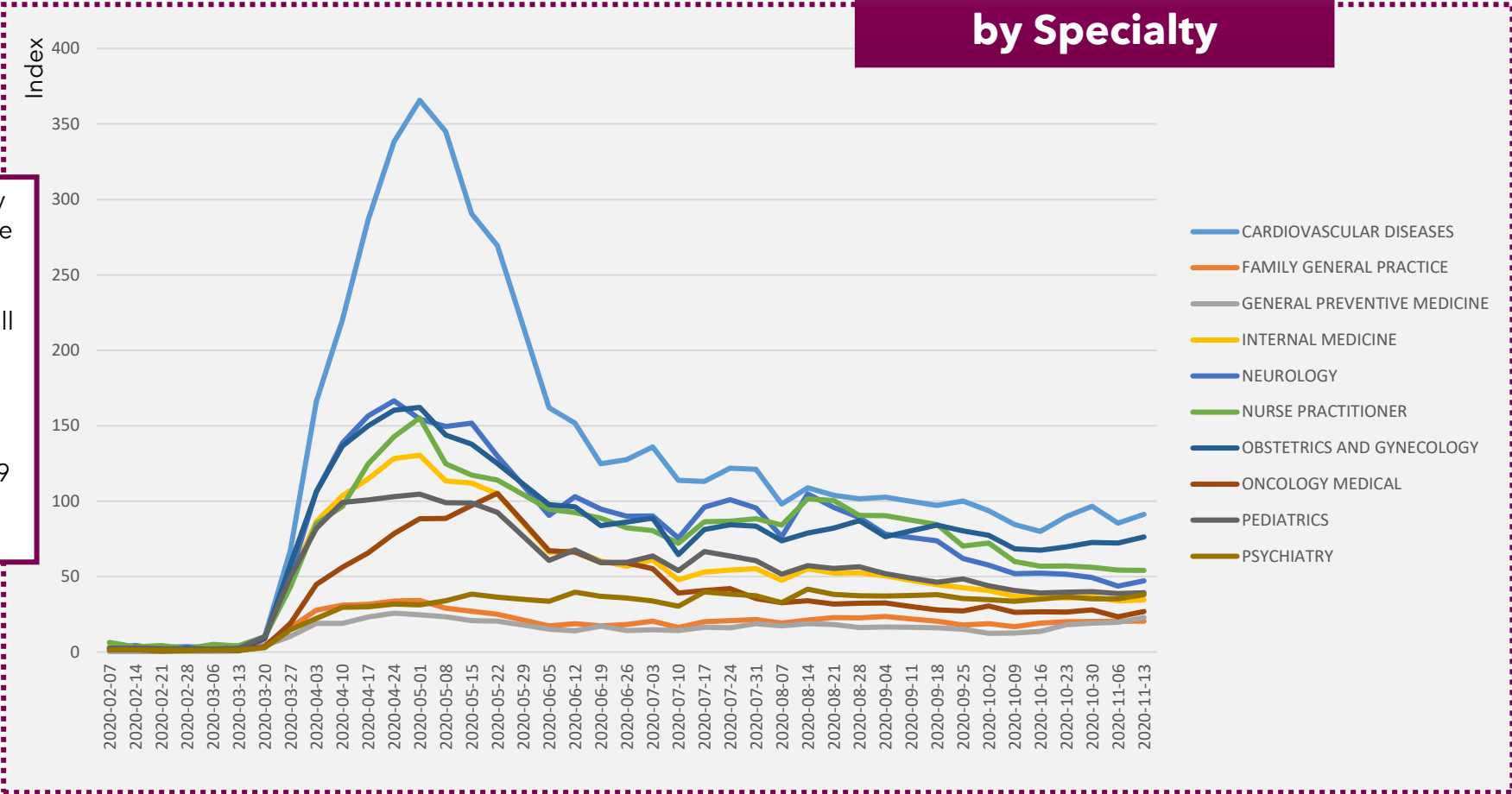


Telemedicine Visits: Specialty



Telemedicine Visits by Specialty

- Telemedicine use by provider specialty has leveled off or declined slightly since the peak in mid-April.
- Despite the declines in recent weeks, all specialties still remain at least 20 times their 2019 levels.
- Among cardiologists, the use of telemedicine peaked at 365 times 2019 levels in early May, and still remain the highest among specialties tracked.



Index = Current Week divided by the 12 Week Rolling Average (from the same time period in 2019)

- An index of 1 means the current week has the same number of claims as the 12 week rolling average from 2019 (100% of 2019 volume).
- An index of 5 means there are 5 times as many claims in the current week as in the 12 week rolling average from 2019 (500% of 2019 volume).
- An index of 0.5 means the current week had 50% fewer claims than the 12 week rolling average from 2019 (50% of 2019 volume).

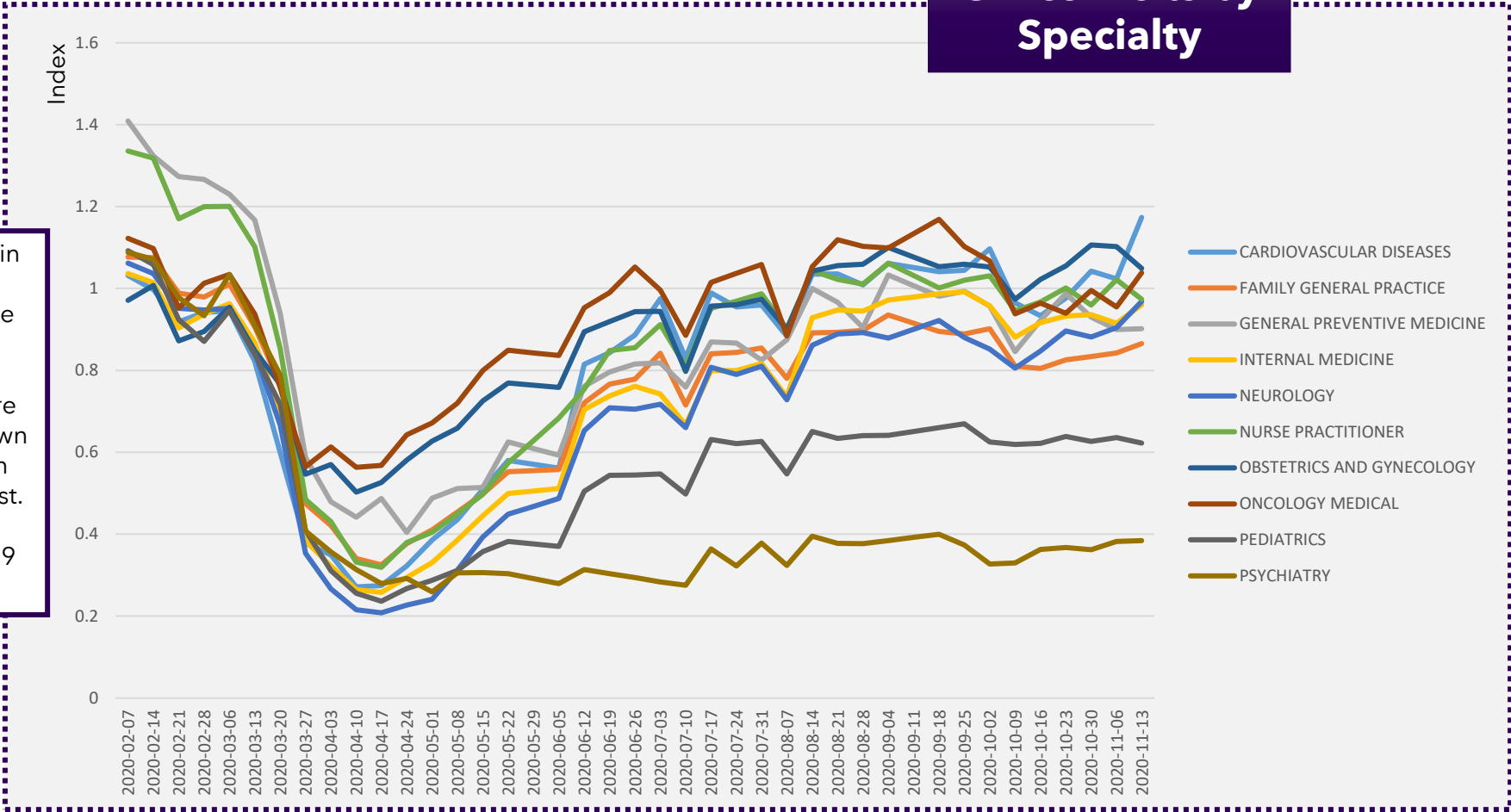


Office Visits: Specialty



Office Visits by Specialty

- Office visits increased from their low point in the week of March 27 through mid-September for all specialties, but have since leveled off.
- Psychiatry office visits remain down by more than 60% and visits to pediatricians are down almost 40% compared to 2019 levels. Both show no signs of improvement since August.
- All other specialties are at least 85% of 2019 levels.



- An index of 1 means the current week has the same number of claims as the 12 week rolling average from 2019 (100% of 2019 volume).
- An index of 5 means there are 5 times as many claims in the current week as in the 12 week rolling average from 2019 (500% of 2019 volume).
- An index of 0.5 means the current week had 50% fewer claims than the 12 week rolling average from 2019 (50% of 2019 volume).

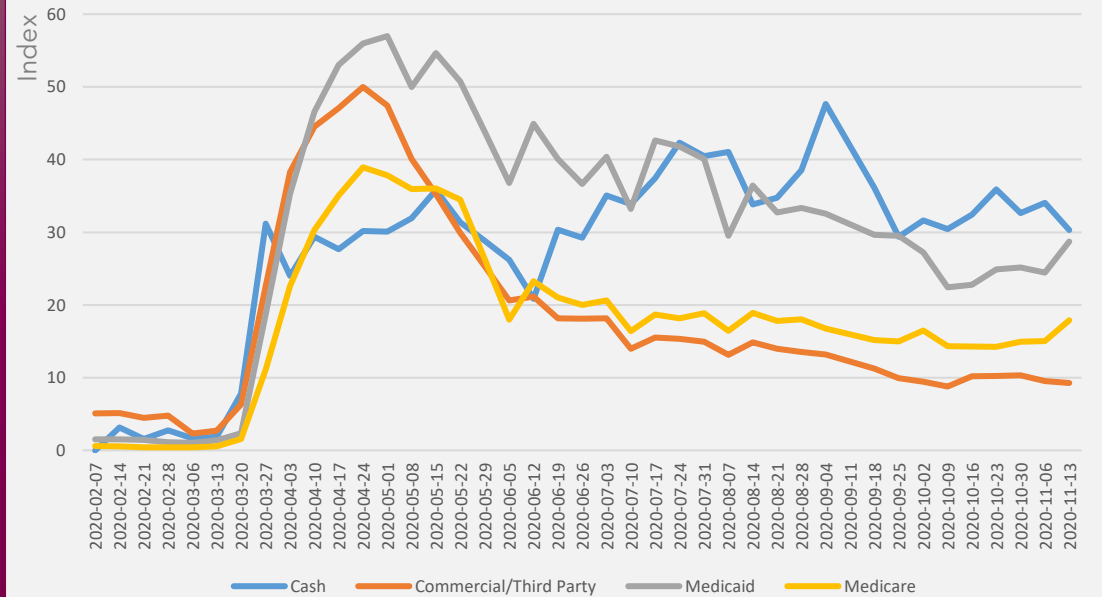


Visits: Payment Type

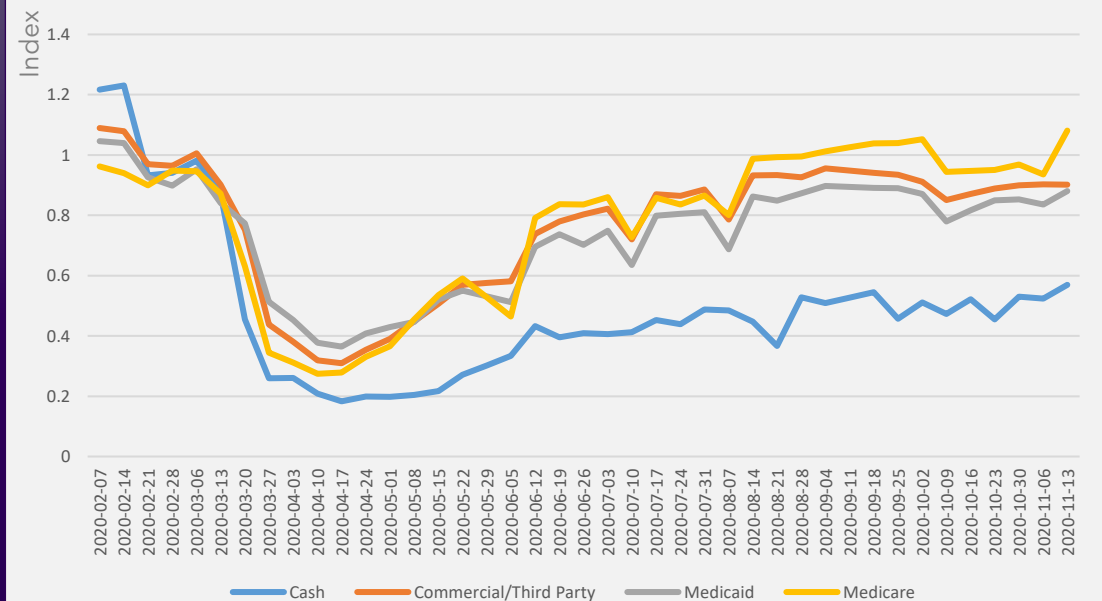
- Despite a steady decline since May, payment types for telemedicine remain significantly above 2019 thresholds.
- With the exception of Cash, office visits for payment types have trended on the inverse to telemedicine.
- Office visits for Cash patients are the hardest hit and continue to trend ~40% under 2019 levels. This may be due, at least in part, to increased unemployment.



Telemedicine Visits by Payment Type



Office Visits by Payment Type



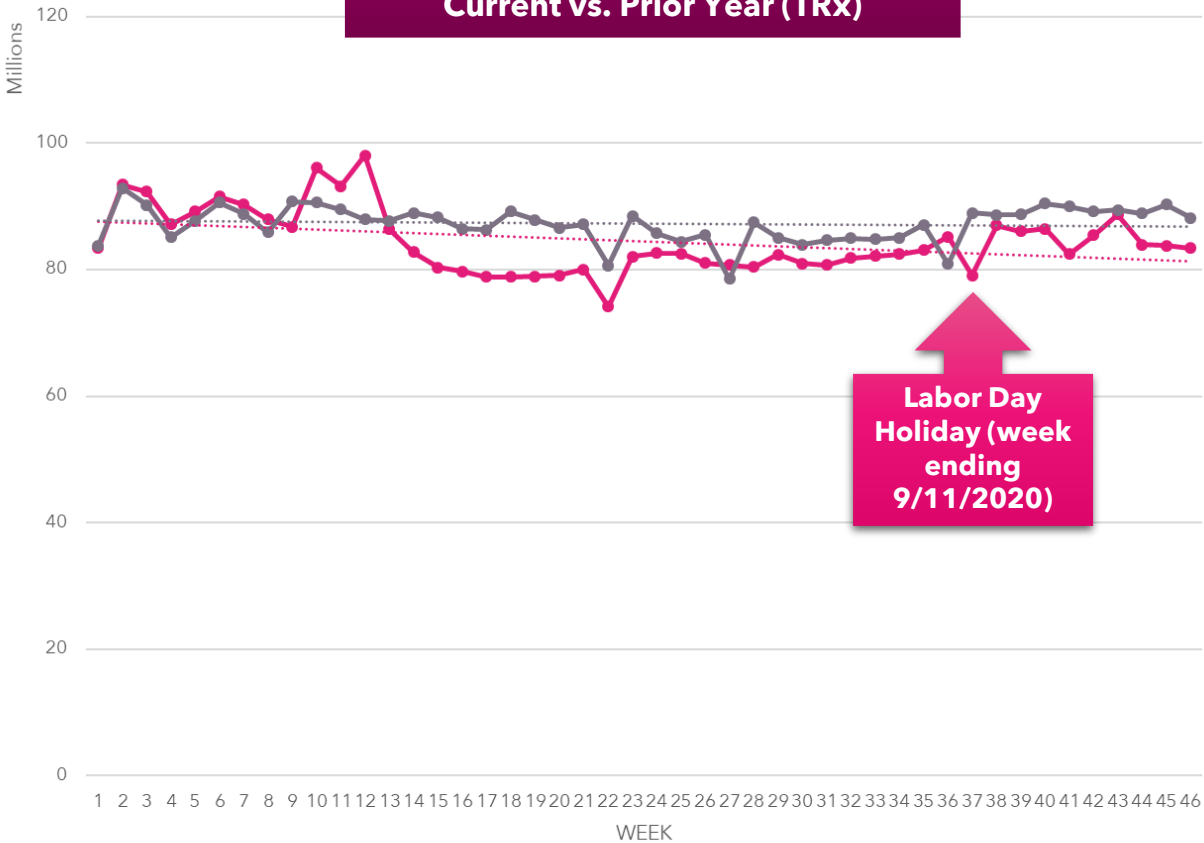
- An index of 1 means the current week has the same number of claims as the 12 week rolling average from 2019 (100% of 2019 volume).
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- An index of 0.5 means the current week had 50% fewer claims than the 12 week rolling average from 2019 (50% of 2019 volume).



NATIONAL TRENDS: Despite the rise of COVID cases in recent weeks, national prescription trends continue to report 5% below 2019 thresholds.



**National Trends
Current vs. Prior Year (TRx)**



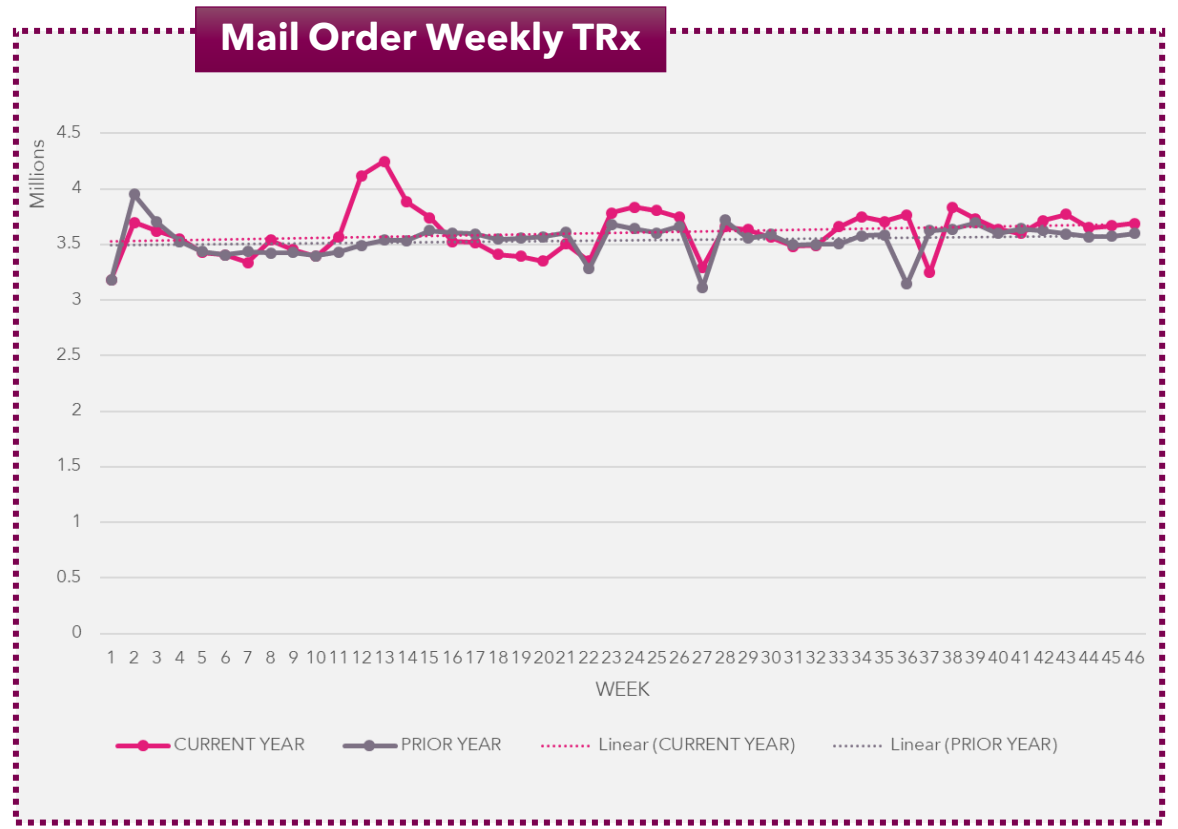
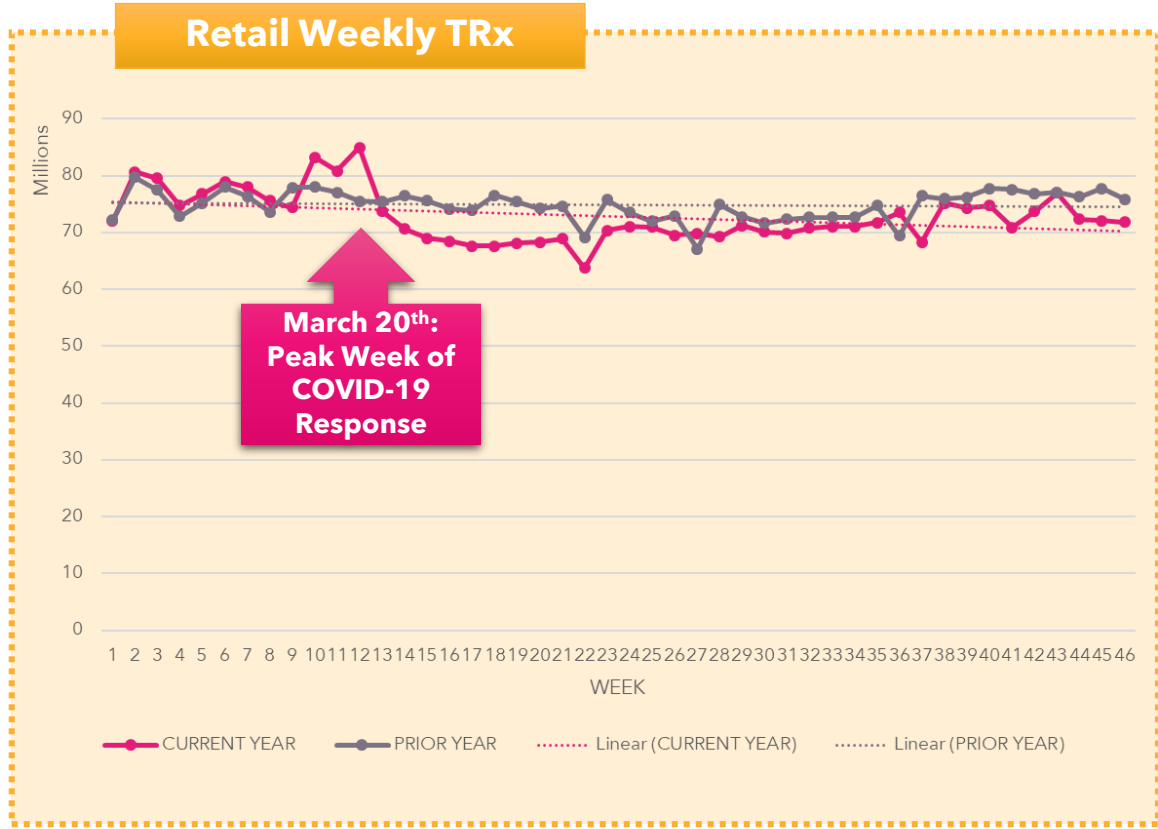
**NRx/TRx % CHANGE
COMPARED TO PRIOR YEAR**



■ NRx: Current vs. Prior Year % Change ■ TRx: Current vs. Prior Year % Change



NATIONAL TRENDS: Minimal changes observed within different distribution channels, with Retail store activity continuing to drive the lower national prescription trends.





ELECTIVE THERAPIES: Recovery for the majority of key therapies continue to remain stagnant among skyrocketing COVID cases and unemployment.

