

*Health Care Trends and
the Impact of COVID-19*

with **Doug Long**
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THURSDAY, JULY 9 • 2PM ET

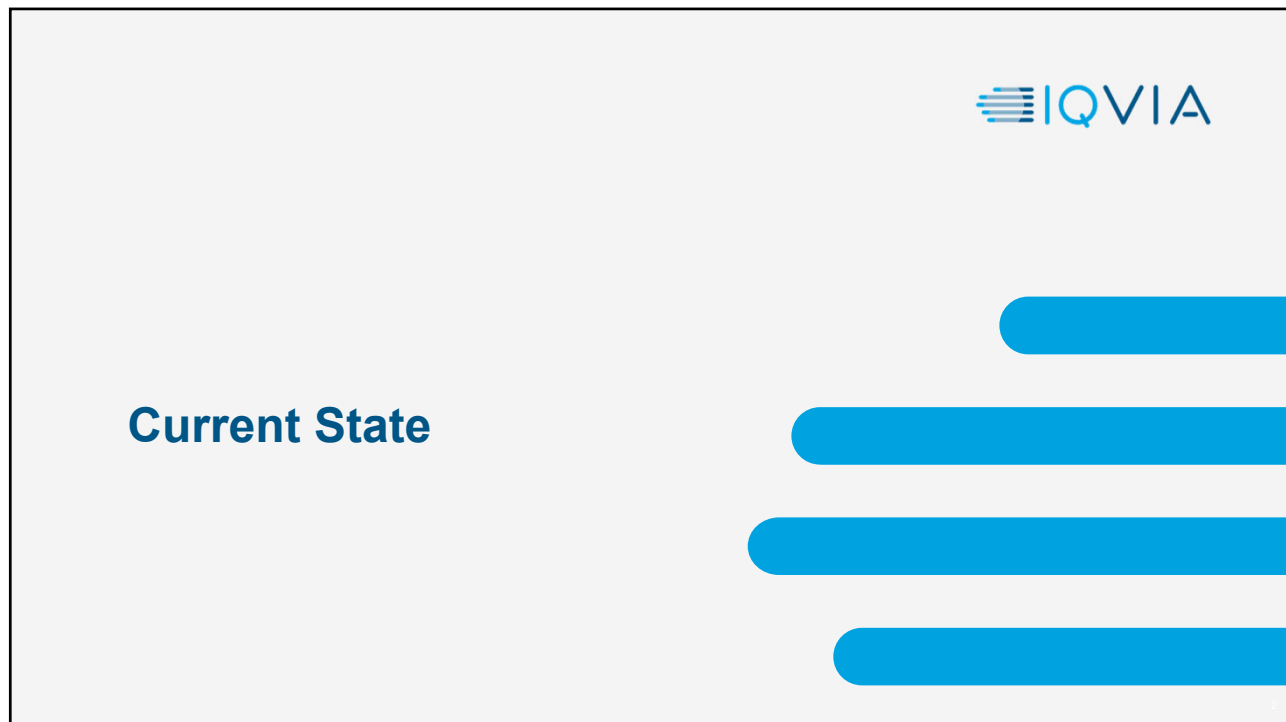
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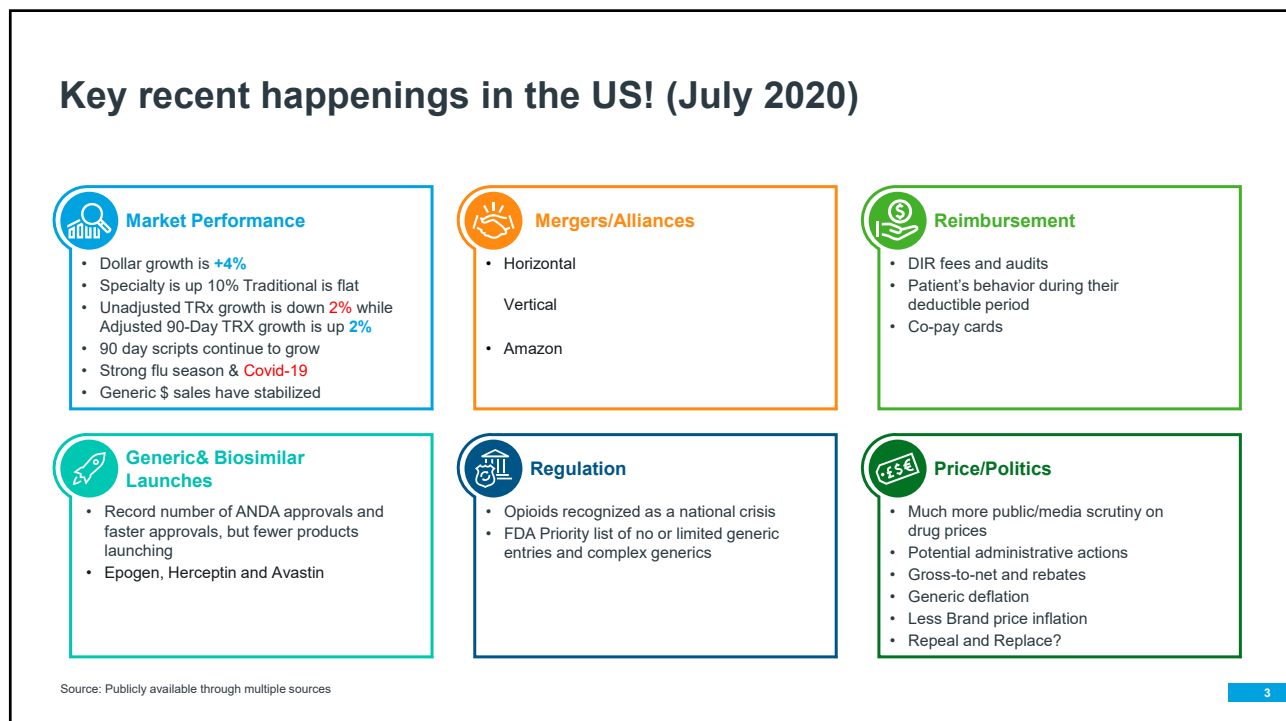
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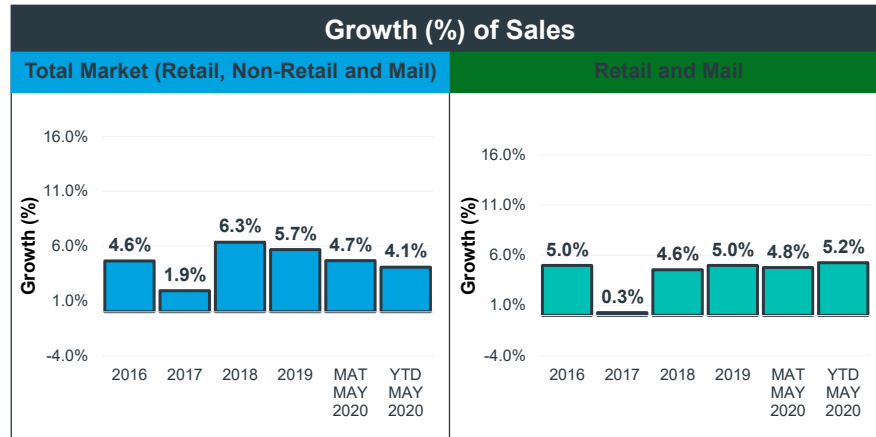


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Total US market dollar sales are growing at a slower rate than retail & mail (combined) for YTD May, indicating non-retail is growing at a slower pace than retail and mail



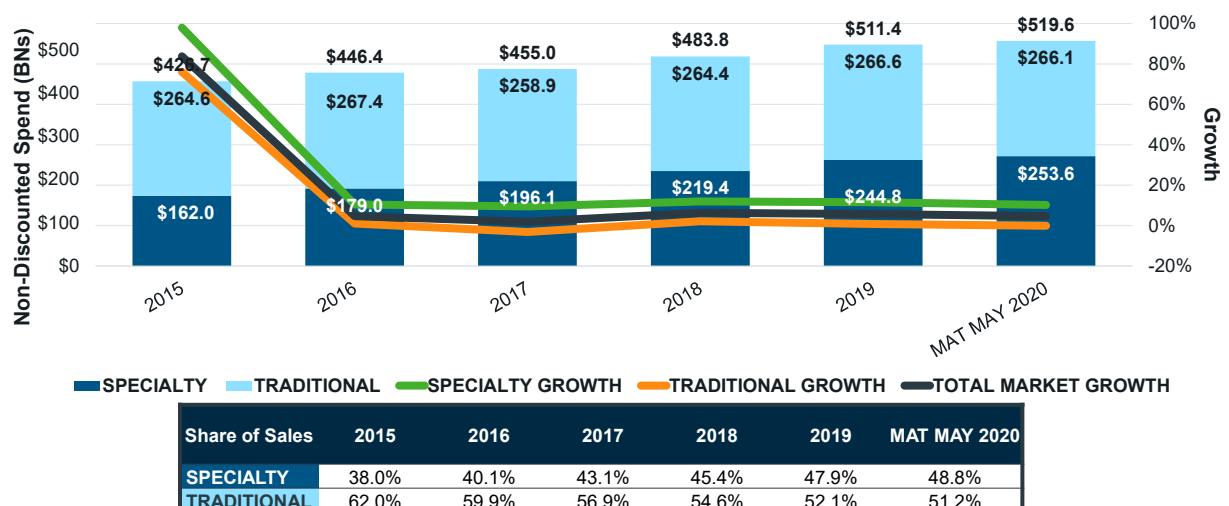
Source: IQVIA, National Sales Perspectives, May 2020
Note: Limited to Rx and OTC Insulins; Includes Retail, Non-Retail and Mail

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For the total market, specialty growth is outpacing traditional product growth and now has ~49% share of total non-discounted spend

In MAT May 2020, specialty spend grew by 10.2% while traditional decreased 0.1%



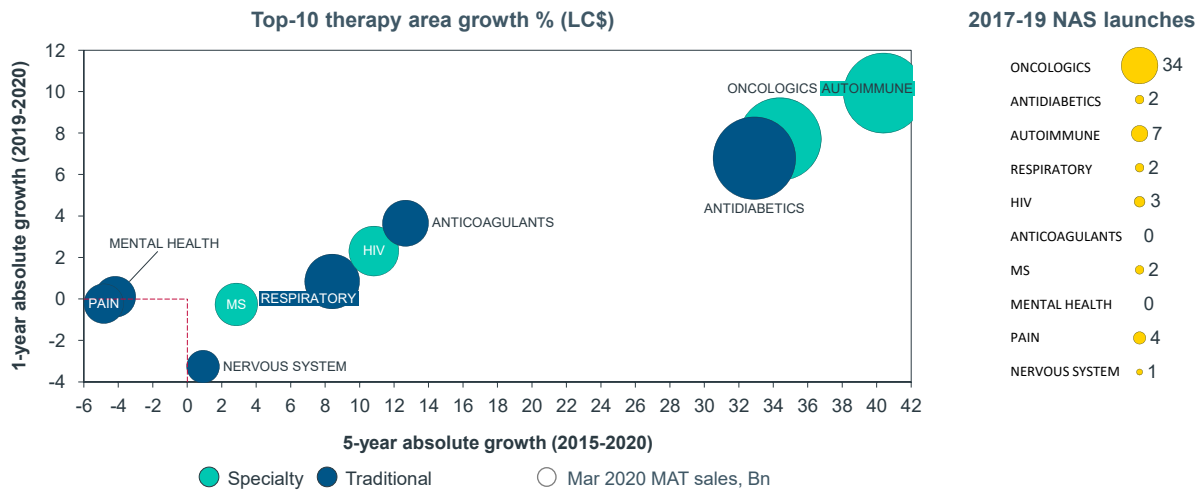
Source: IQVIA, National Sales Perspectives, May 2020

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Just three therapy areas are responsible for over 50% of positive absolute growth in the US and 40% of recent launches

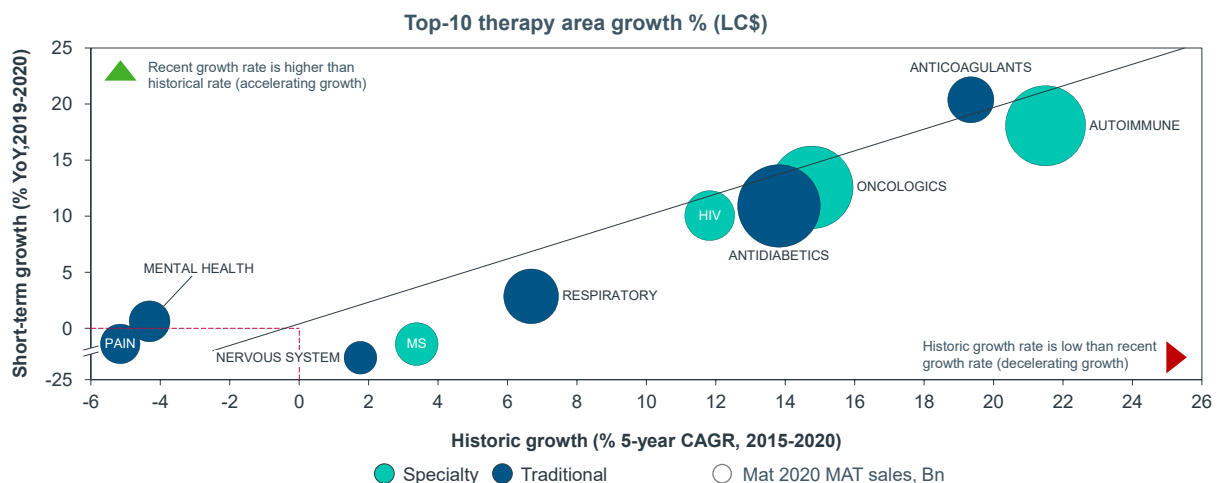
US total market absolute growth (\$)



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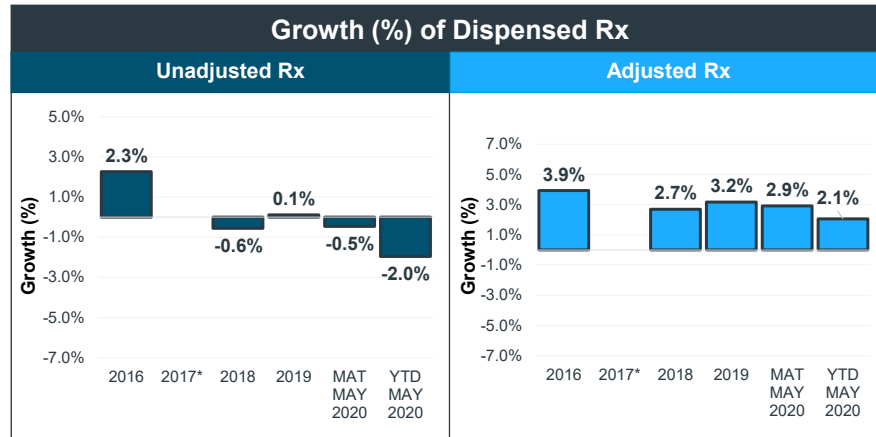
However, growth is now slowing in all three major therapy areas; specifically, oncology growth has slowed by 5% since prior year

US total market growth rate (%)



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Unadjusted Rx growth for MAT and YTD May is negative, but adjusted growth is higher, at 2.9% for MAT May and 2.1% year to date



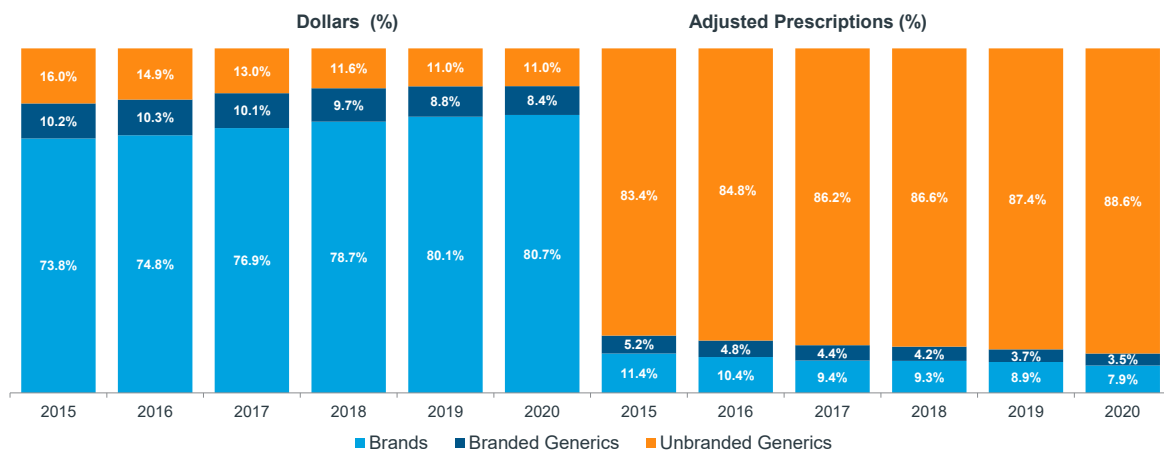
Source: IQVIA, National Prescription Audit & RxInsight, May 2020; Retail, Mail, and LTC limited to Rx and OTC Insulins
*Note: Declines between 2016 and 2017 are due to VRAF enhancement from 2017 onwards

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88.6% of prescriptions are dispensed as unbranded generics for 2020 (adjusted)

Unbranded and branded generics account for 19.4% of spending in 2020



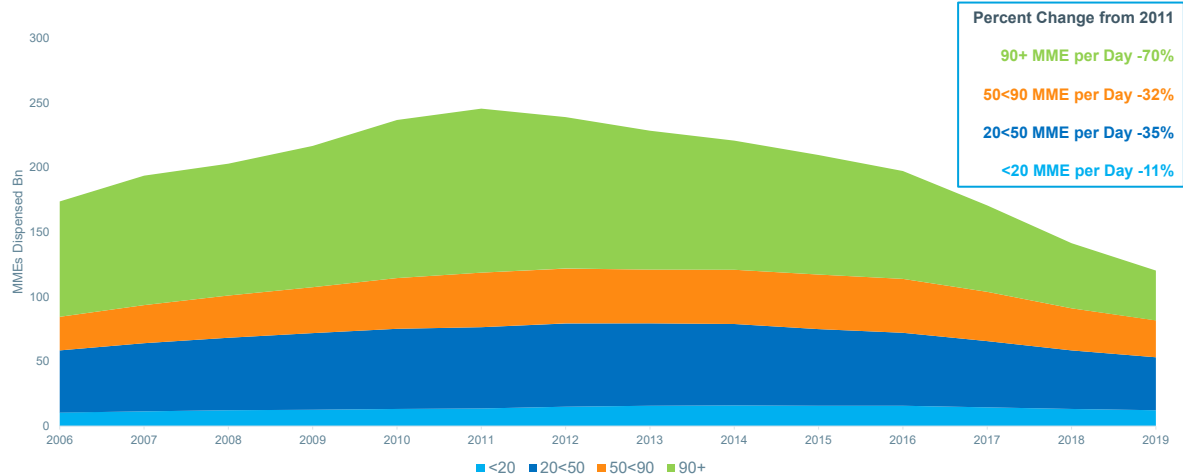
Source: IQVIA, National Sales Perspectives, National Prescription Audit, May 2020
Note: Numbers may not add exactly to 100% due to rounding

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Prescription opioid volume has declined by 51% since the 2011 peak with the greatest reduction in higher risk segments

Opioids as Measured by Morphine Milligram Equivalent Volume and MME per Day Segments



Source: IQVIA Xponent, Feb 2020; IQVIA Institute Feb 2020

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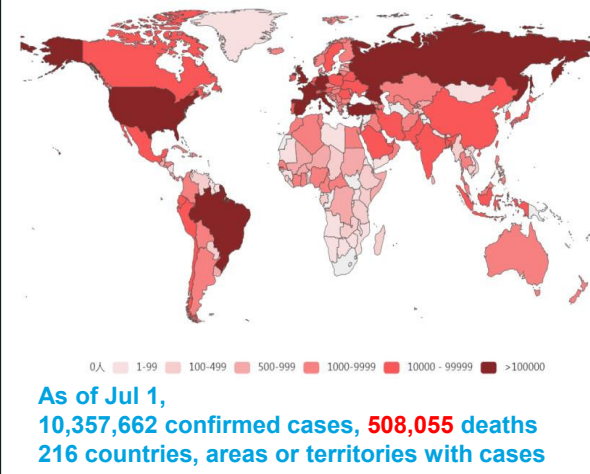
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Evaluating the impact

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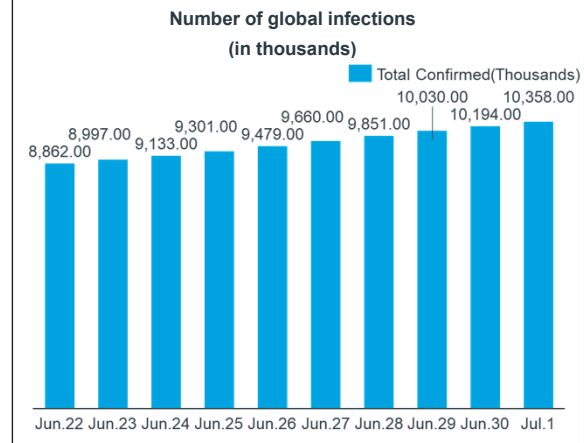
COVID-19 spreads rapidly to more than 200 countries

COVID-19 cases is expanding rapidly worldwide



Source: JHU, CSSE, <https://systems.jhu.edu/research/public-health/ncov/>, updated Jul 2, 2020

Number of infections globally is increasing rapidly in the past 10 days



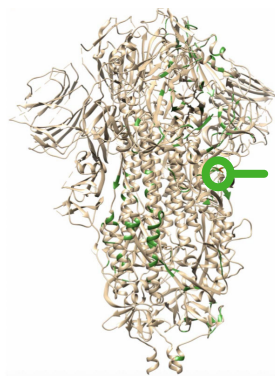
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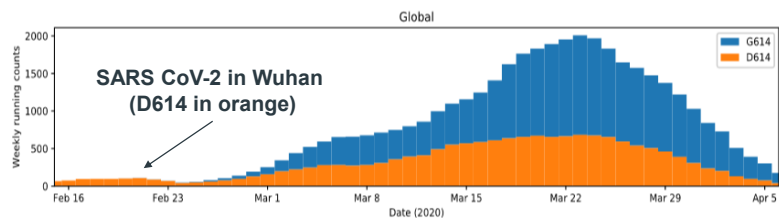
SARS CoV-2 mutations are relatively infrequent although G615 mutation has quickly become dominant globally

Adaptive pressures could impact future transmission as well as efficacy of vaccines based upon earlier viral characteristics



SARS-CoV-2 spike protein

- SNP mutations (green)
- D614G mutation (red)



Impact of viral mutations:

- Increased likelihood of mutations as infections increase
- Efficacy of vaccines based upon earlier versions of virus
- Accuracy of diagnostic tests
- Transmission capacity
- Severity of infection
- Potential need for booster vaccines

doi.org/10.1101/2020.04.29.069054doi
doi.org/10.1101/2020.04.28.066977doi

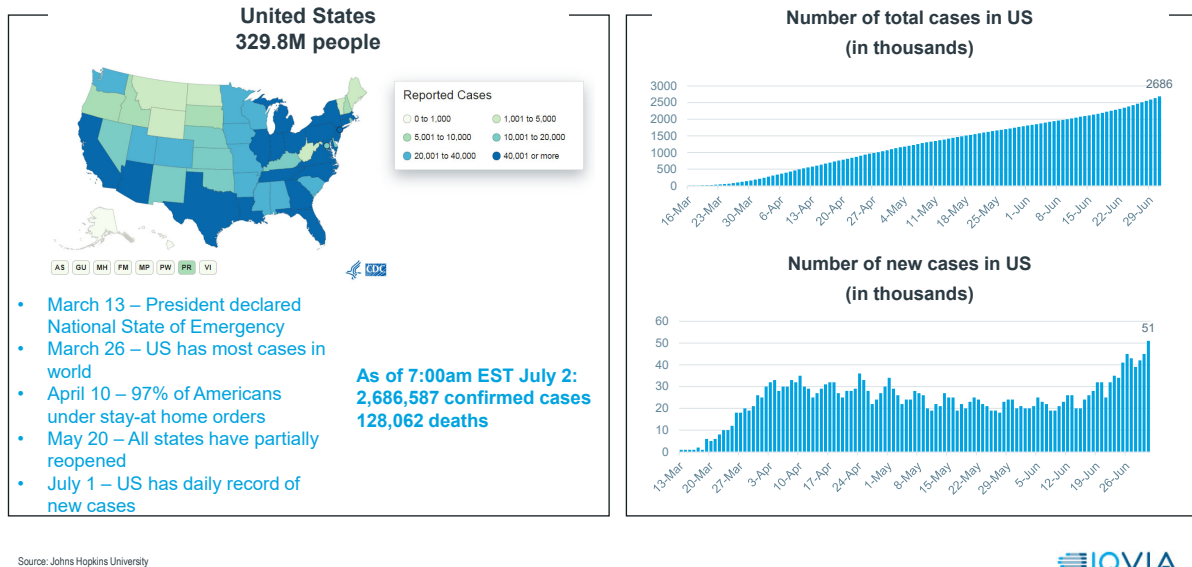
IQVIA Global Executive Briefing: COVID-19 June 2020; Copyright 2020 IQVIA.

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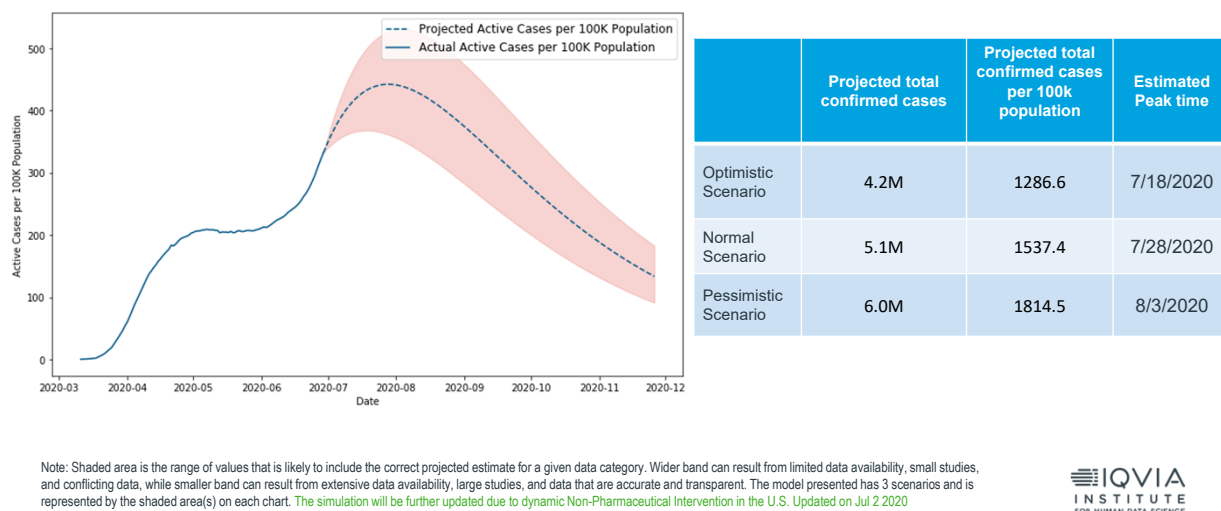
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COVID-19 spreads quickly in US, more cases are reported as more people being tested



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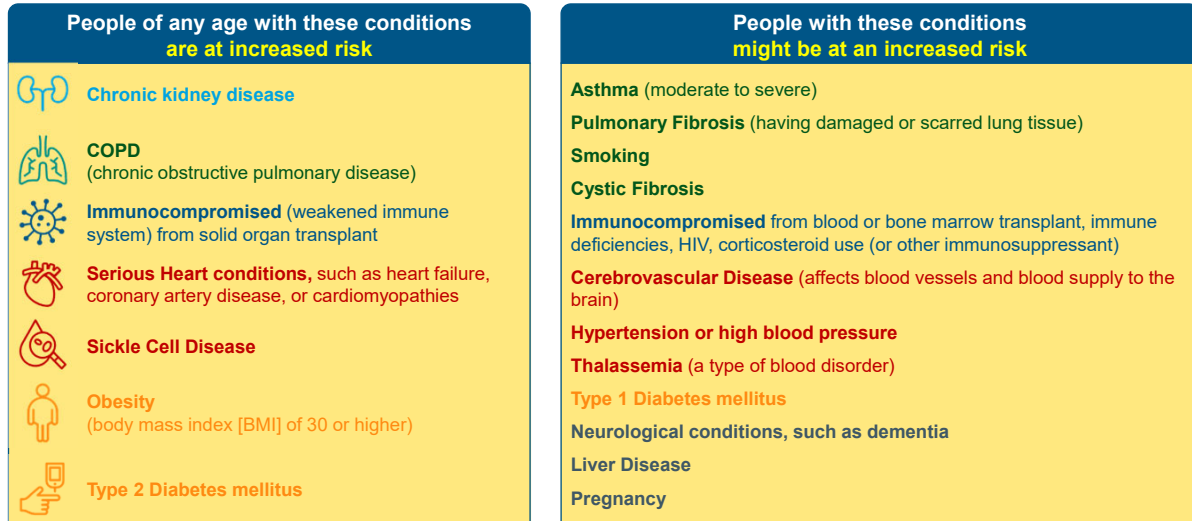
Simulation band of active cases in next 150 days in US



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CDC expands list of people at risk of severe COVID-19 illness



Source: <https://www.cdc.gov/media/releases/2020/p0625-update-expands-covid-19.html>

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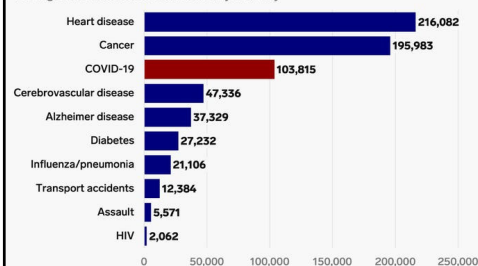
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At its peak, COVID-19 was one of the leading causes of death in US and other Western countries

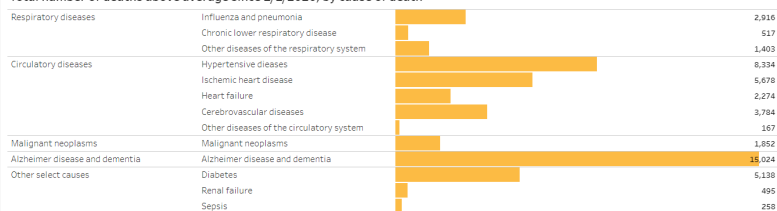
In addition to official COVID-19 deaths, there were above normal deaths in related patient categories

COVID-19 and common US causes of death

Average total deaths between February and May



Total number of deaths above average since 2/1/2020, by cause of death



Excess mortality may be due to unappreciated cause of death due to COVID-19 (Alzheimer's Disease) or delayed treatment (ischemic heart disease)

Using the UK as an example, COVID19 deaths reached 40k, while COPD averages around 30k deaths annually (Source: British Lung Foundation)

Source: <https://www.businessinsider.com/covid-19-compared-to-other-common-us-causes-of-death-2020-5?r=US&IR=T> and https://www.cdc.gov/nchs/nvss/srvc/covid19/excess_deaths.htm (accessed 2020-06-24)

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An increasing number of states are facing surged pressure on healthcare capacity as infections rise post states opening

Decline in Cases

- All states, except MD, MA, DC, NJ, NY, RI, and SD, showed an increase in case growth
- Daily case growth and 5-day trend* suggest that none of these 6 states plus DC shows sign of rebound**, but caution is warranted in 3
- CO has shown the most signs of rebound** in the past 14 days

*5-day trend is based on data from 06/25 to 06/29 per data cutoff date of the report.

**Sign of rebound after a state has passed the case growth threshold are an increase in 5-day growth trend and at least one day of new cases/100K greater than 10

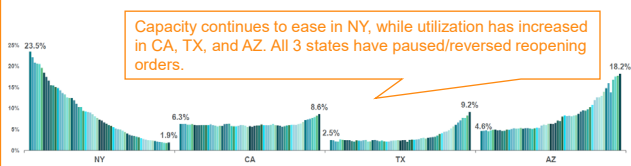
Diagnostic Testing Capacity

- 7 states and DC have demonstrated a 14-day* decline in the trend in % positive
- No state has yet met the CDC metric of 14 consecutive days included in draft technical guidance
- The % positive test remains above 10% in AZ, NV, FL, SC, TX, GA, AL, ID and AR over the prior week

*14-day trend is based on data from 06/16 to 06/29 per data cutoff date of the report

Health Facility & Worker Capacity

COVID-19 Hospitalizations as % of State Hospital Beds (5/1 – 6/30)



Source: Nephron COVID-19 Daily Tracker, data ending June 29, 2020 'Global Cases Not Abating' [Click this link to subscribe to the Nephron Research COVID-19 Daily Tracker](#)

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Public Health System Capacity

- The total number of contact tracers has expanded to 44k from roughly 11k at the start of the pandemic
- At present, only 7 states have sufficient tracers to meet the National Association of County and City Health Officials standard of 30 tracers per 100K during periods of pandemic

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Week-over-week, visits are up while elective procedures, prescriptions and labs are down, as the economy shows signs of easing

Data Week Ending June 19, 2020
Published July 3, 2020

16.0% Institutional

16.1% Office

2.4% Telehealth

Weekly **visit** growth

-2.0% retail

-1.2% mail

% Change in total
prescriptions vs.
prior week (W/E
6/26/2020)

19.3M

Continuing
unemployment (w/e
6/20) claims which
was flat vs. prior
week

-6.8%



Weekly
increase
in **labs**



Oncology Weekly Changes

Oncology
NBRx rolling
4-wk growth

+3.1%

Oncology
patient
interactions

Still exceeding
baseline with new
diagnoses at 96%
of baseline

-9.9%

Weekly
increase in
**elective
procedures**

+1.4%

Increase in NBRx vs. prior
week, and continues are down
-0.6% (W/E 6/19/2020)

[Click this link to subscribe to the Nephron Research COVID-19 Daily Tracker](#)

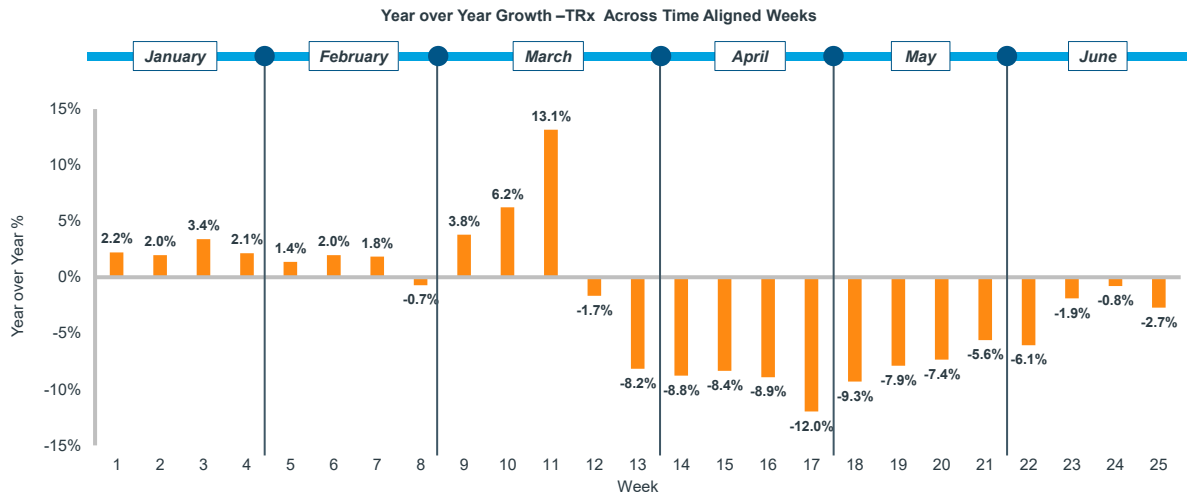
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As the virus rapidly spread in several heavily populated states, prescription growth against last year pulled back



Source: IQVIA: National Prescription Audit (NPA)
Week 1 2019 = W/E 1/11/2019; Week 1 2020 = W/E 1/10/2020; Week 24 2019 = W/E 6/21/2019; Week 24 2020 = W/E 6/19/2020; Channel prescriptions not normalized for prescription size

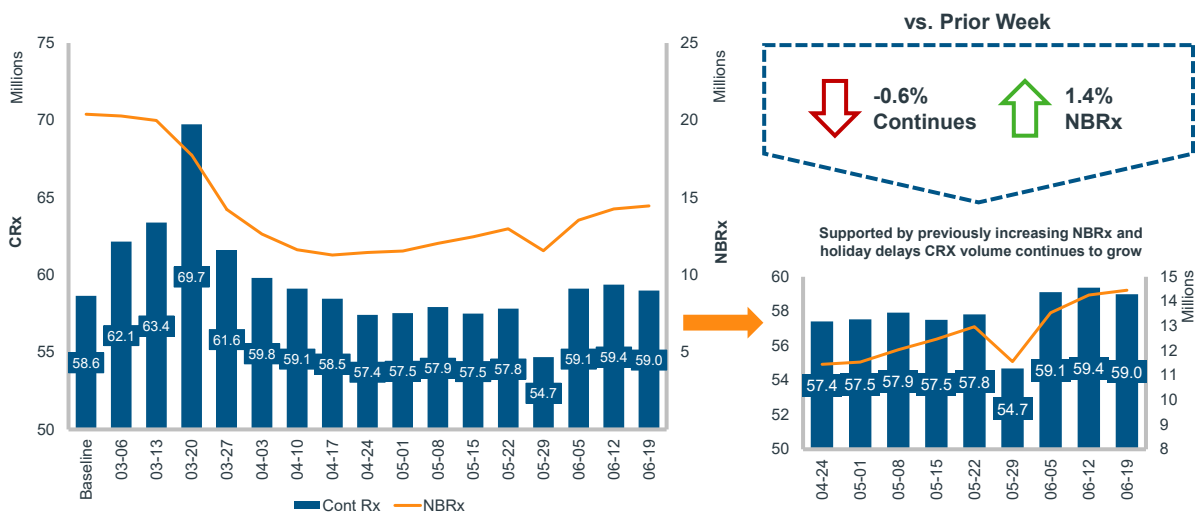
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Despite softness in continuing prescriptions increases in face to face engagement in the office continue to drive new to brand growth



Source: IQVIA: National Prescription Audit (NPA), National Prescription Audit: New to Brand (NPA NTB); 2020; Baseline 2020 Period = Average share of NTB % and CRX % for weekly aggregate 1/10/2020-2/28/2020

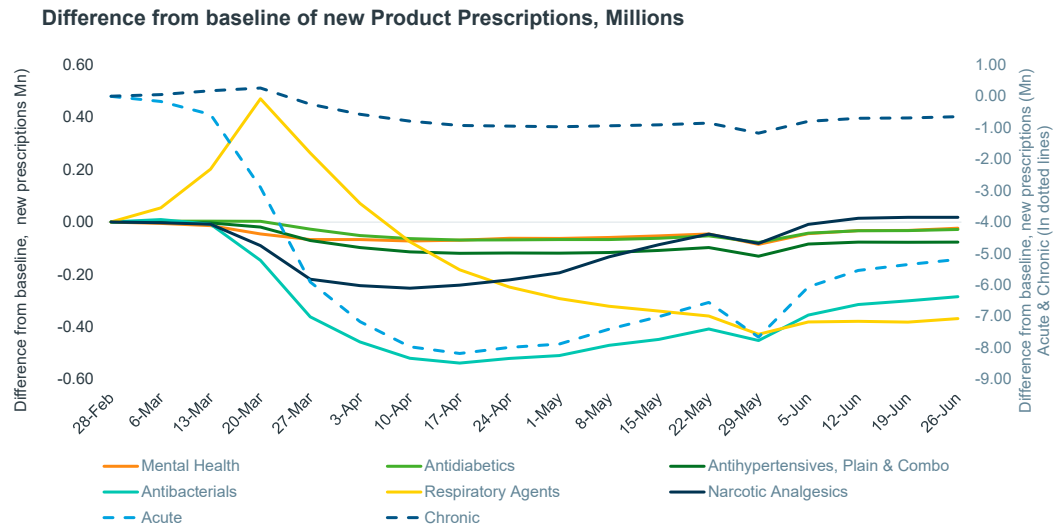
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New Prescriptions were disrupted as patients were unable to see prescribers

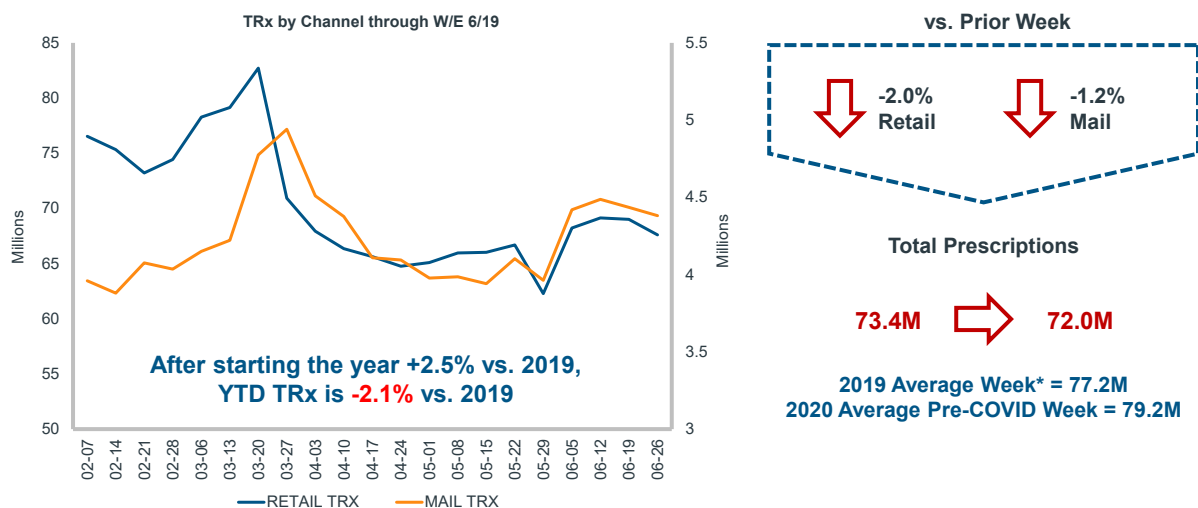


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As numerous rates report rapid increases in positive tests, prescription trends show signs of retreat

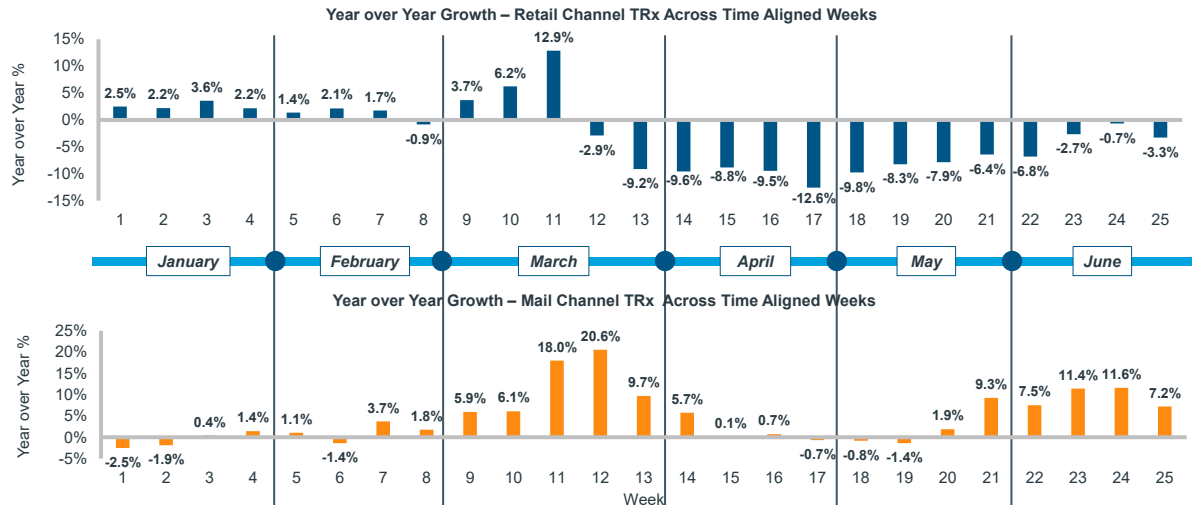


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While retail TRx continues below last year's trends, patients continue to drive volume into the mail channel



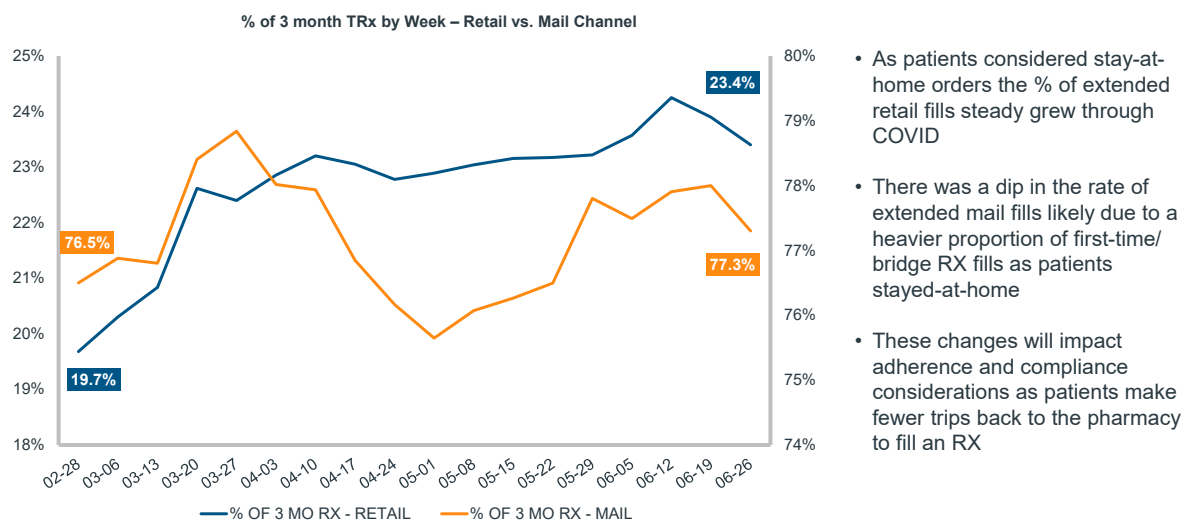
Source: IQVIA: National Prescription Audit (NPA), National Prescription Audit: New to Brand (NPA NTB); 2019-2020
Week 1 2019 = W/E 1/11/2019; Week 1 2020 = W/E 1/10/2020; Week 24 2019 = W/E 6/21/2019; Week 24 2020 = W/E 6/19/2020; Channel prescriptions not normalized for prescription size
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Prescriptions with 3 month supply are at or near YTD highs as patients look to increase the size of their prescriptions



Source: IQVIA: National Prescription Audit (NPA); 2020
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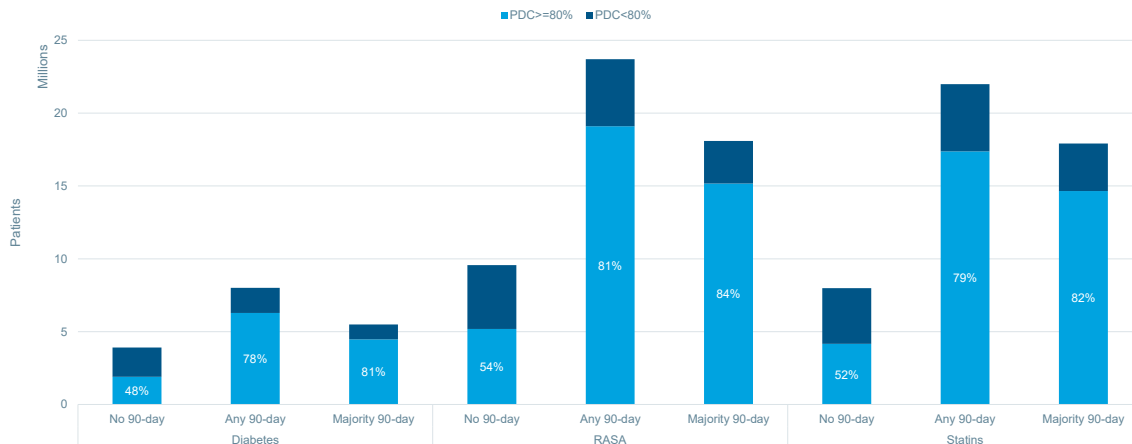
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90-day Rx's are an effective way to increase adherence rates

Adherence rates in each market are more than 30 percentage points higher for patients getting the Majority 90-day Rx's



Source: Information Partner Services Retail Longitudinal Patient Data May, 2019

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The Case for Risk Adjustment in Medication Adherence

"When used in accountability applications, performance measures that are influenced by factors other than the care received, particularly outcomes, need to be adjusted for relevant differences in patient case mix to avoid incorrect inferences about performance."¹

Clinically Complex Patient¹

- Multiple Chronic Conditions
- Severe Primary Condition (e.g., Severe heart failure, metastatic cancer, end-stage renal disease)
- Concurrent mental and physical health problems
- Disease affects multiple organ systems
- Disease causes significant functional deficit or disability
- Condition requires treatment by multiple providers and/or specialized sites of care



Sociodemographically Complex Patient¹

- Poverty – Low income and/or no liquid assets
- Low levels of formal education, literacy or health literacy
- Limited English proficiency
- Minimal or no social support – not married, living alone, no help available for essential health related tasks
- Poor living conditions – homeless, no heat or air conditioning in home or apartment, unsanitary home environment, High risk of crime
- No community resources – social support programs, public transportation, retail outlets

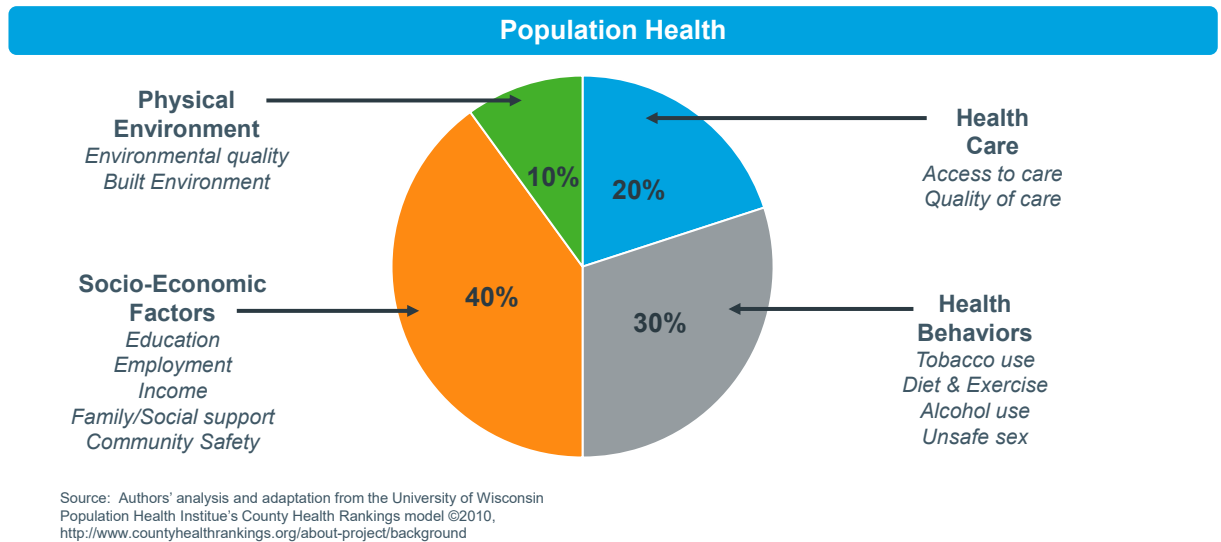


¹"Risk Adjustment for Socioeconomic Status or Other Sociodemographic Factors TECHNICAL REPORT August 15, 2014", National Quality Forum

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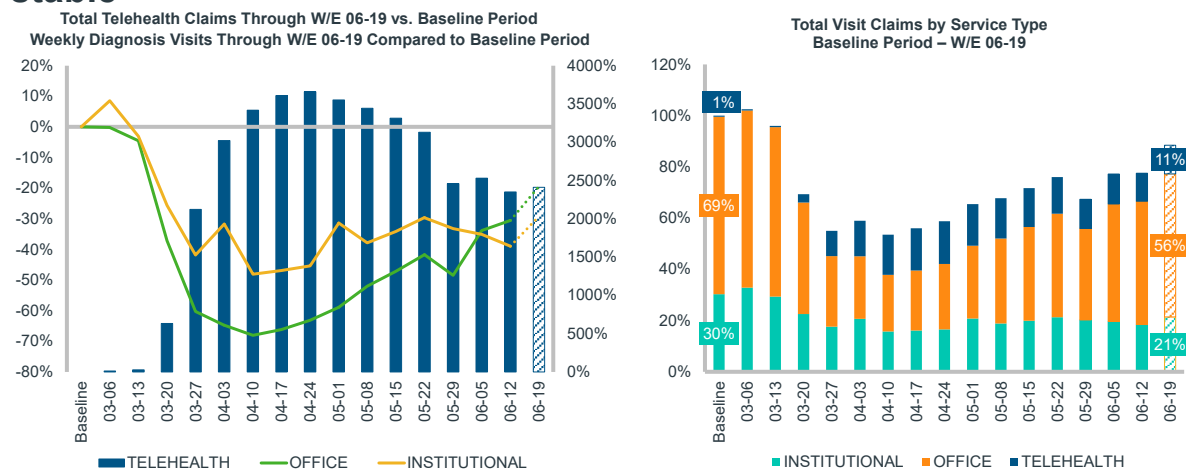
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Social Determinants of Health



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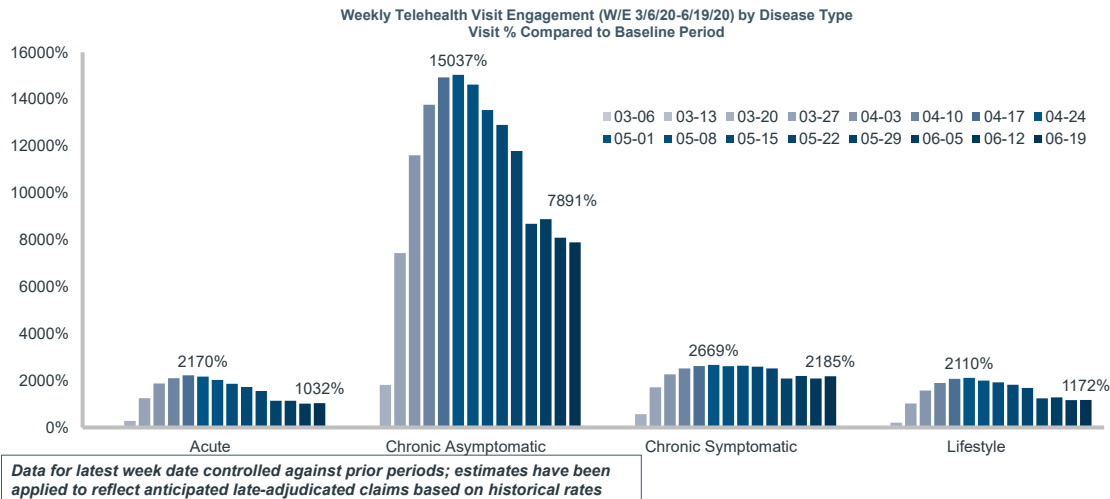
As states grapple with expanded outbreaks office visits continue to increase nationally while telehealth engagement remains stable



Source: IQVIA: Medical Claims Data Analysis, 2020; Baseline = Average of claims for period W/E 1/10/2020-2/28/2020. Estimated amounts for latest weeks applied based on likely claims still to be received due to data latency or claim processing delays; See Appendix for further details
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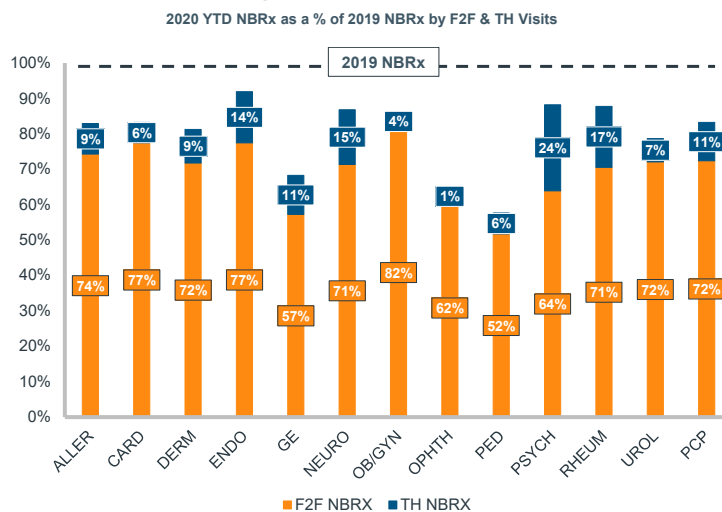
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Telehealth has impacted all types of conditions – but most notably those that are chronic asymptomatic



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Over the course of the pandemic, the increased presence of telehealth engagement has not made up for the reduction in NBRx vs. last year



Source: IQVIA: NPA New To Brand (NTB); 2019-2020 plus custom analysis of telehealth and face-to-face office patient interaction, 2019 Period = W/E 3/8/19-6/7/19 vs. 2020 Period = W/E 3/6/20-6/19/20
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Overall telehealth NBRx productivity remains lower than office visits given several engagement drivers

NBRx Per Patient Visit

| Specialty | 4 W/E 6/21/19 Office | 4 W/E 6/19/20 Office | 4 W/E 6/19/20 Telehealth | Difference (%) Office v. TM |
|---------------------|----------------------|----------------------|--------------------------|-----------------------------|
| Dermatologists | 1.16 | 1.16 | 0.97 | -17% |
| Allergists | 1.01 | 1.01 | 0.79 | -22% |
| Pediatrics | 1.16 | 1.16 | 0.80 | -31% |
| Rheumatologists | 0.52 | 0.52 | 0.36 | -32% |
| Gastroenterologists | 1.04 | 1.04 | 0.70 | -32% |
| PCP | 0.99 | 0.99 | 0.67 | -33% |
| Ob/Gyn | 1.14 | 1.15 | 0.77 | -33% |
| Ophthalmologists | 1.31 | 1.31 | 0.87 | -33% |
| Neurologists | 0.55 | 0.55 | 0.36 | -35% |
| Psychiatry | 0.44 | 0.44 | 0.27 | -39% |
| Cardiologists | 0.64 | 0.65 | 0.38 | -41% |
| Urology | 1.16 | 1.16 | 0.65 | -44% |
| Endocrinologists | 0.60 | 0.61 | 0.33 | -46% |

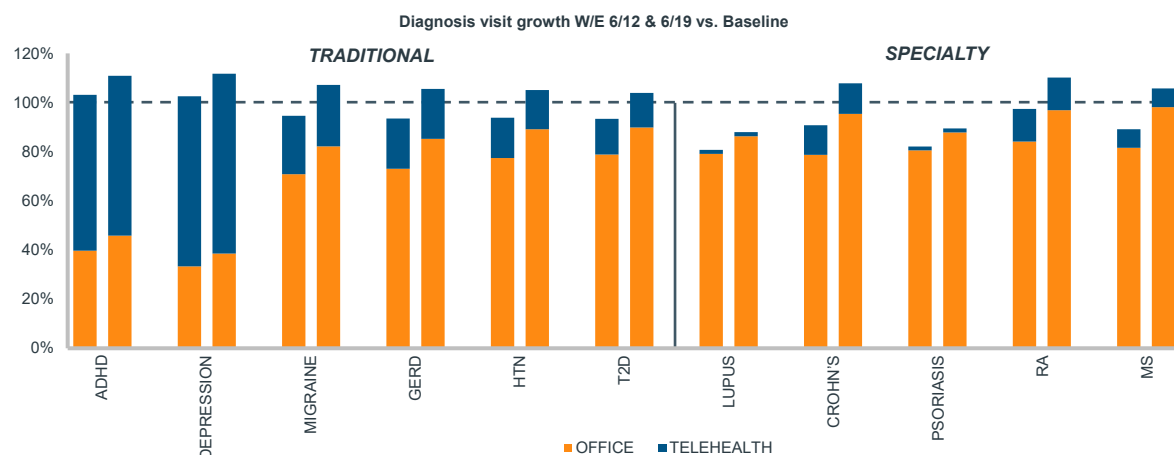
Note: Prior publication of this slide erroneously used projected new to brand metrics – the current slide has been revised to use eligible RAW NBRx for greater accuracy;
Source: NPA New To Brand (NPA NTB); Medical Claims analysis; 2020; Custom analysis
Evaluation of medical claims visit with same patient/prescriber combination occurring as NBRx within 2 weeks of medical claim service date
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Potential Drivers of Difference

- Patient mix skews towards existing patients replacing office visits with telehealth
- Willingness to initiate new therapy remotely
- Lack of diagnostics such as vitals and labs are impeding diagnosis of new conditions
- Prescribers are reporting spending less time on a telehealth call with patients which may reduce NBRx opportunity

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All conditions have appeared to returning to pre-COVID volume levels with telehealth compensating for in office shortcomings for many conditions

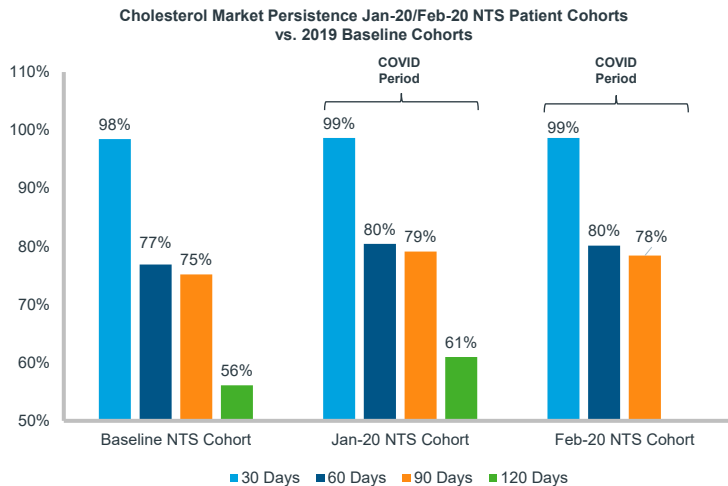


Data for latest week date controlled against prior periods; estimates have been applied to reflect anticipated late-adjudicated claims based on historical rates

Source: IQVIA; Medical Claims Data Analysis, 2020; Baseline = Average of claims for period W/E 1/10/2020-2/28/2020.
Estimated amounts for latest 2 weeks applied based on likely claims still to be received due to data latency or claim processing delays; See Appendix for further details
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As new therapy patients stayed at home due to COVID-19, they have shown to be more adherent to their medications vs. last year



Persistence rates include patients who switched medications but restarted on another clinically relevant drug
Source: NPA Market Dynamics; Compliance and Persistence Module; IQVIA standard clinical market definitions; Baseline = average of new therapy start patient cohorts from June 2019 – December 2019

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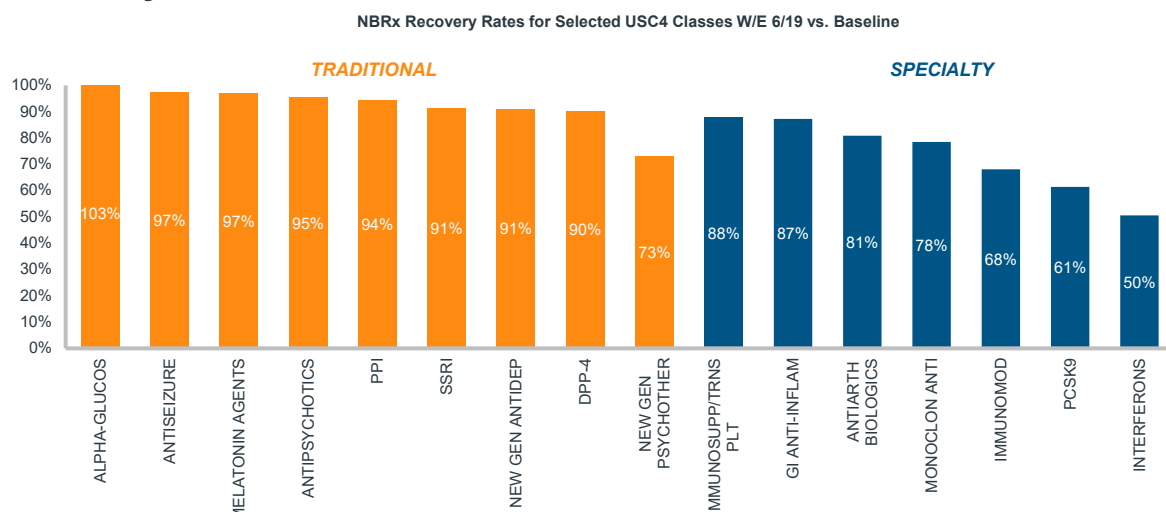
- In March, as patients accelerated therapies as part of a medication stockpiling trend, many became over-adherent
- Staying at home combined with a large shift to 90 day scripts has resulted in persistency rates higher than 2019 baseline cohorts

| Cohort | 30D % Chg | 60D % Chg | 90D % Chg | 120D % Chg |
|----------|-----------|-----------|-----------|------------|
| Jan-2020 | 1% | 3% | 4% | 5% |
| Feb-2020 | 1% | 3% | 3% | NA |

NOTE: A patient is considered adherent if they obtain a refill of their medication within a period equal to 2x the days supply of the medication previously received

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Recovery rates for traditional medications have grown to over 90% of pre-virus levels while more complex treatments lag in recovery

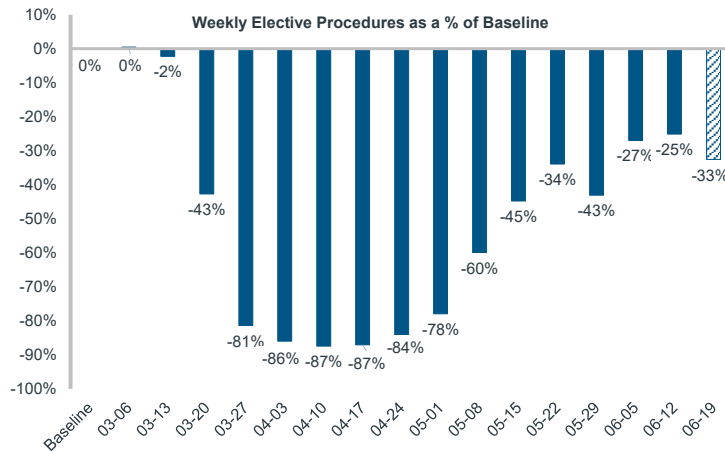


Source: IQVIA; National Prescription Audit (NPA), National Prescription Audit: New to Brand (NPA NTB); 2020; Recovery Rate = W/E 6/19/20 NBRx over Average Baseline 2020 Period NBRx; 1/10/2020-2/28/2020

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Elective procedure volumes may be finding a new baseline as sites grapple with capacity and patients are slow to return



- Definition of elective procedures is inconsistent and may vary geographically
- Once states permitted elective procedures to resume the immediate recovery occurred with already scheduled patients
- Full recovery depends on the ability for the system to regenerate patients through diagnosing, testing, and scheduling
- The potential for further outbreaks may reduce capacity as the system undergoes further preparations

Data for latest week date controlled against prior periods; estimates have been applied to reflect anticipated late-adjudicated claims based on historical rates

Source: IQVIA: Medical Claims Data Analysis, 2020; Baseline = Average of procedures for period W/E 1/10/2020-2/28/2020, Elective procedures based on IQVIA custom analysis
Estimated amounts for latest 2 weeks applied based on likely claims still to be received due to data latency or claim processing delays; See Appendix for further details

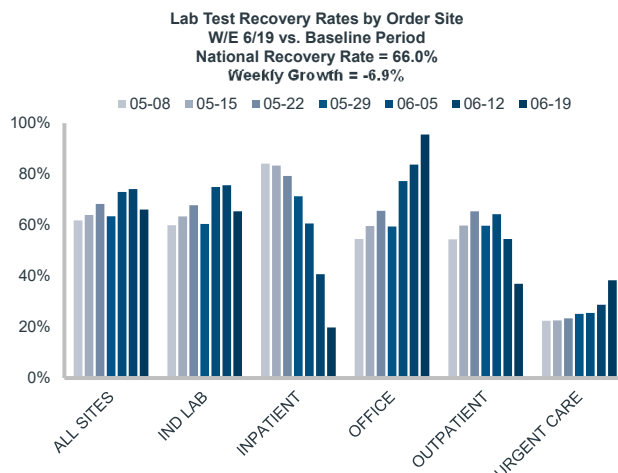
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Office based lab orders continue to grow as patients reengage with providers but hospital sites lag as elective procedures slow

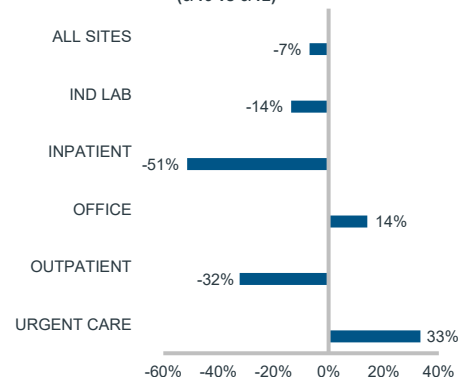


Data for latest week date controlled against prior periods; estimates have been applied to reflect anticipated late-adjudicated claims based on historical rates

Source: IQVIA: Medical Claims Data Analysis, 2020; Baseline = Average of lab orders for period W/E 1/10/2020-2/28/2020, Lab test recovery rates based on IQVIA custom analysis
Estimated amounts for latest 2 weeks applied based on likely claims still to be received due to data latency or claim processing delays; See Appendix for further details

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**Lab Test Weekly Growth Rates by Place of Service
(6/19 vs 6/12)**

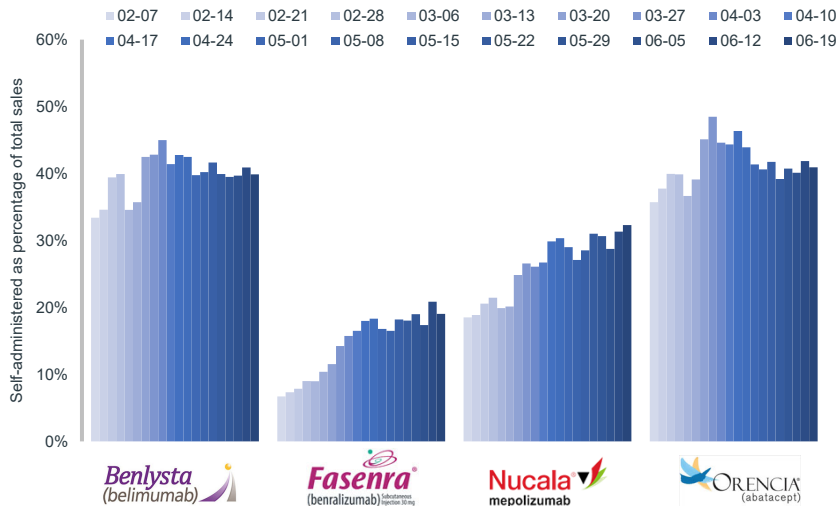


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As patient comfort with office visits increases, brands with IV options are seeing patient administered options decrease



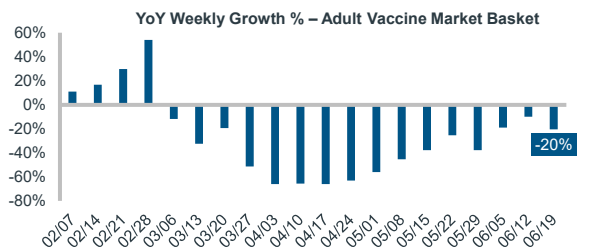
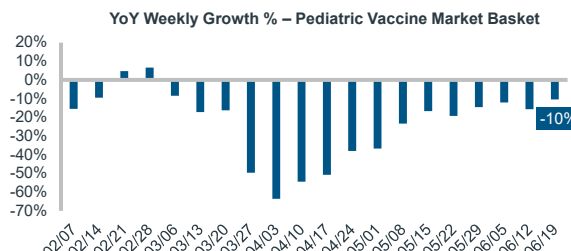
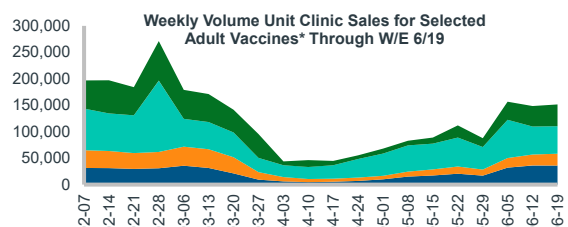
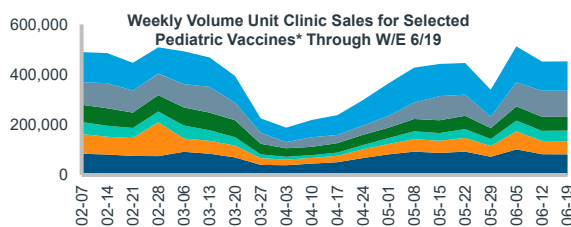
- Benlysta is IV for HCPs and subQ for patients
- Fasenra is available as a pre-filled syringe for HCPs and an autoinjector for patients
- Nucala is available as an injection vial for HCPs and a prefilled syringe and autoinjector for patients
- Orencia is IV for HCPs and subQ for patients

Source: IQVIA: Weekly Sales Perspectives (WSP); 2020; "Patient administered" reflect injectable forms that do not require a professional to administer

COVID-19 Market Impact - w/e June 19, 2020

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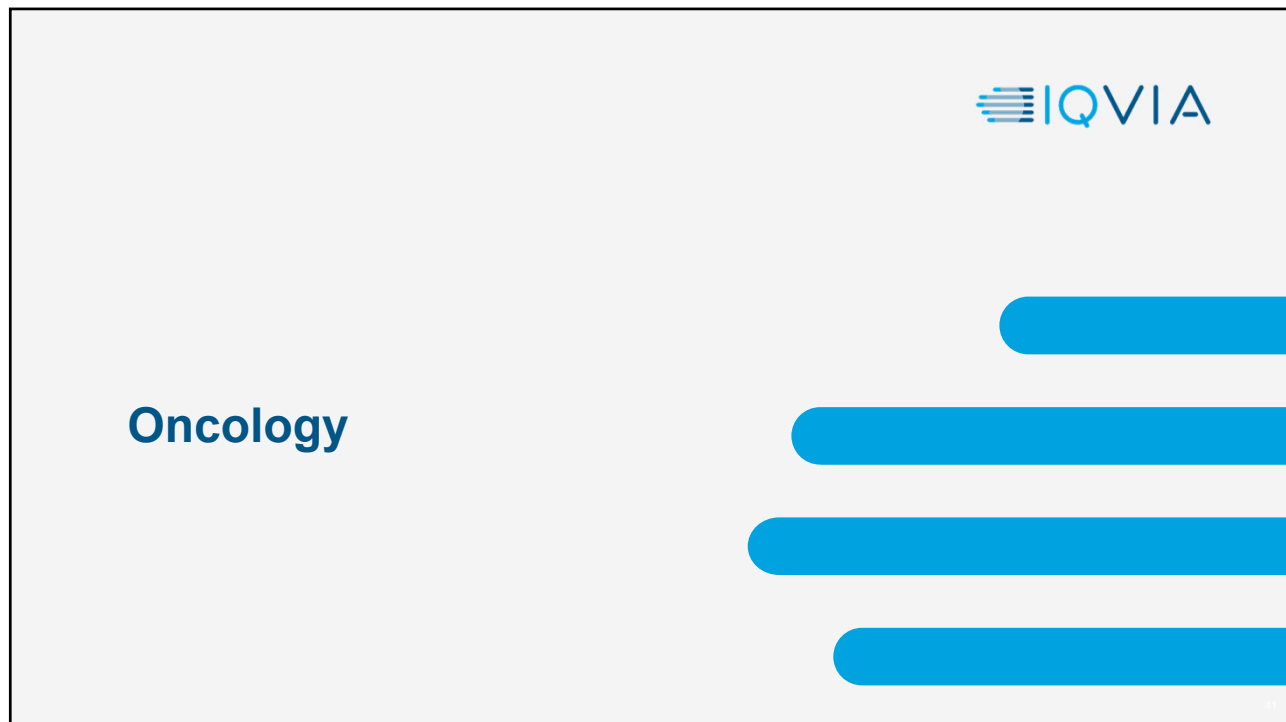
While all vaccines have recovered, overall utilization remains below pre-COVID levels and lower than 2019



Source: IQVIA Weekly Sales Perspectives (WSP), February – May 2020; Note: Data reflects sales to clinic channel as defined by IQVIA – No methodology has been applied to determine VACCINE USE BY AGE

COVID-19 Market Impact - w/e June 19, 2020

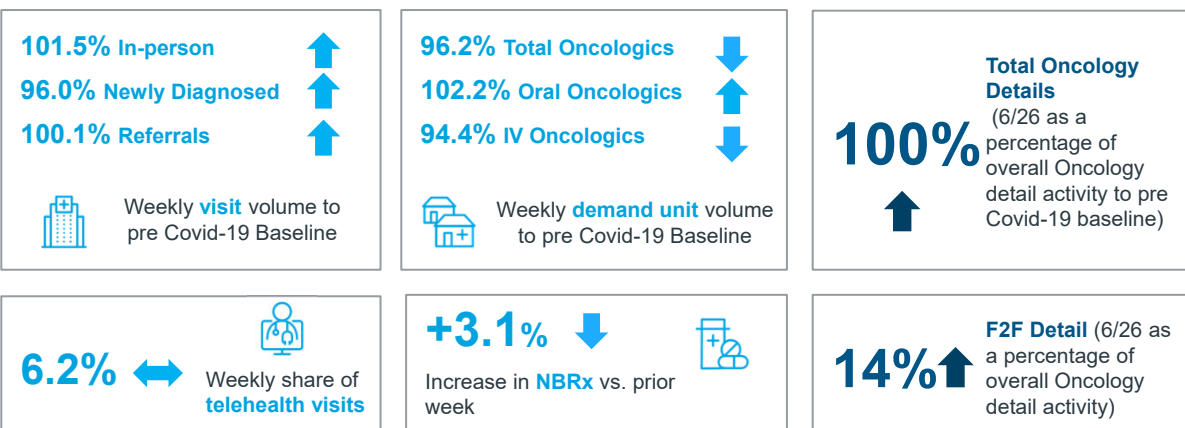
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Hem/Onc key patient and treatment dynamics continue to rebound and to show with some rebounds; F2F oncology promotion still down significantly

Oncology & Hematology Data Week Ending June 19, 2020
Published July 2, 2020

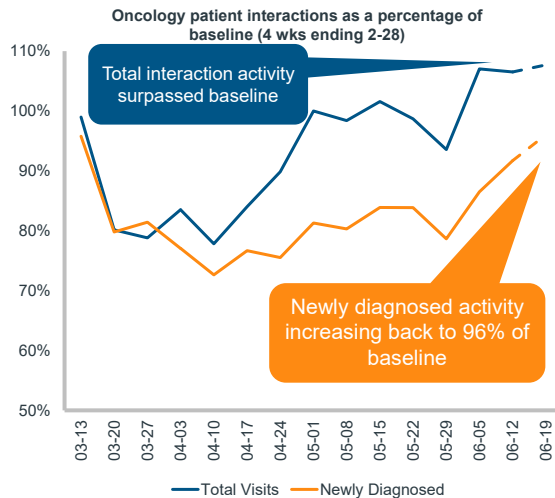


[Click this link to subscribe to the Nephron Research COVID-19 Daily Tracker](#)

COVID-19 Market Impact - w/e June 19, 2020

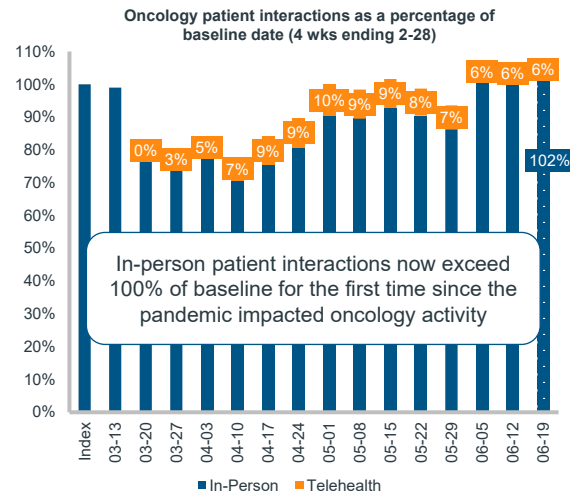
42

HEM/ONC F2F patient interactions have exceeded baseline in both of the last two weeks as stay-in-place orders continued to ease



Notes: Limited to oncology market. 4-week average weekly volume (admins, visits, TRxs), index period: 4-week ending with 2/28/20; Source: IQVIA Oncology medical and pharmacy claims

COVID-19 Market Impact - w/e June 19, 2020



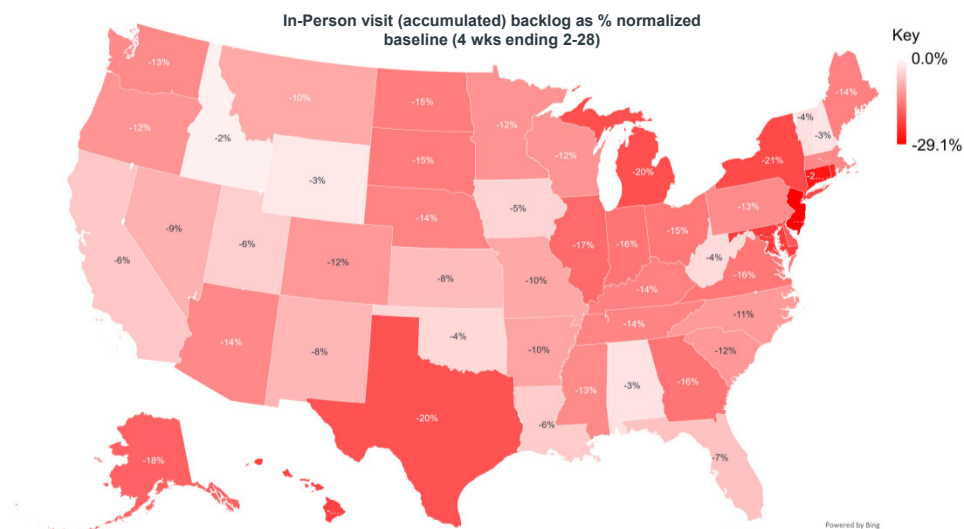
Notes: Limited to oncology market. Telehealth vs. Non Telehealth Billed activities
Source: IQVIA Oncology medical claims

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Backlog of oncology in-person visits varies widely by state with NY, NJ, CT still below comparable baseline volumes



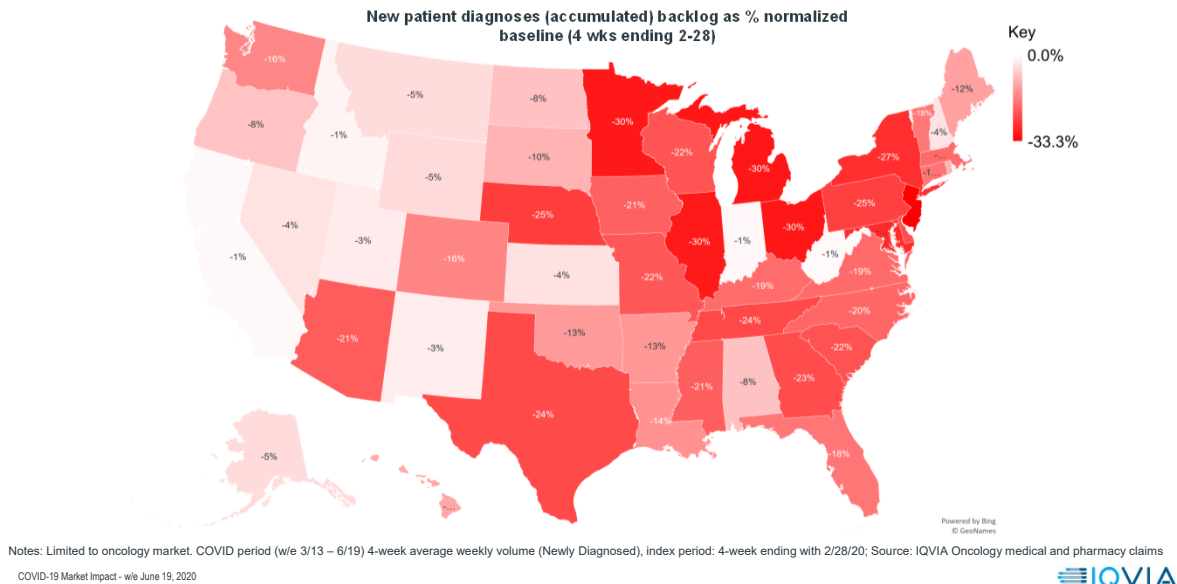
Notes: Limited to oncology market. COVID period (w/e 3/13 – 6/19) 4-week average weekly volume (In-person Visits), index period: 4-week ending with 2/28/20; Source: IQVIA Oncology medical and pharmacy claims
COVID-19 Market Impact - w/e June 19, 2020

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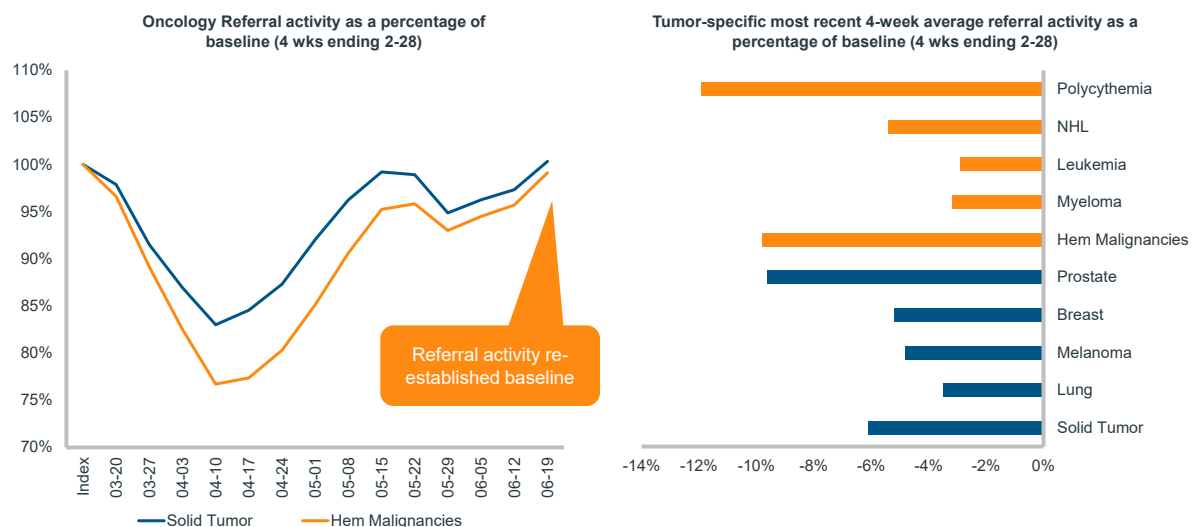
44

Backlog of oncology new diagnoses is large, with several states behind by up to 1/3 accumulated baseline volume



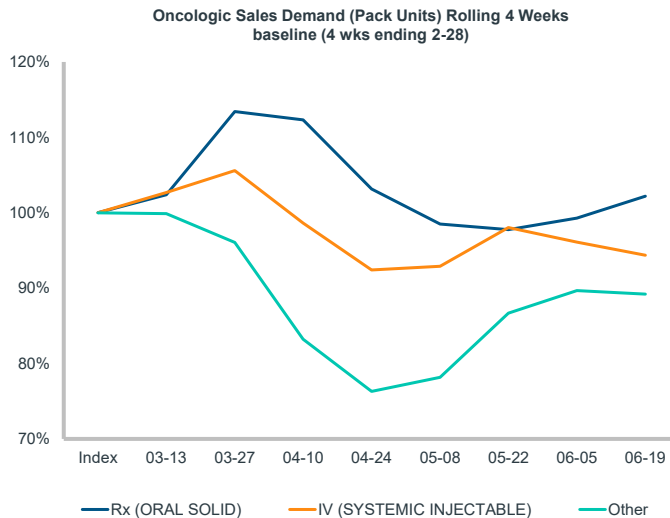
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Overall oncology referral activity has returned to baseline in the current week overall; but variability still remains by tumor



46

Overall oncologic sales demand has leveled off at baseline with demand for IVs and orals converging



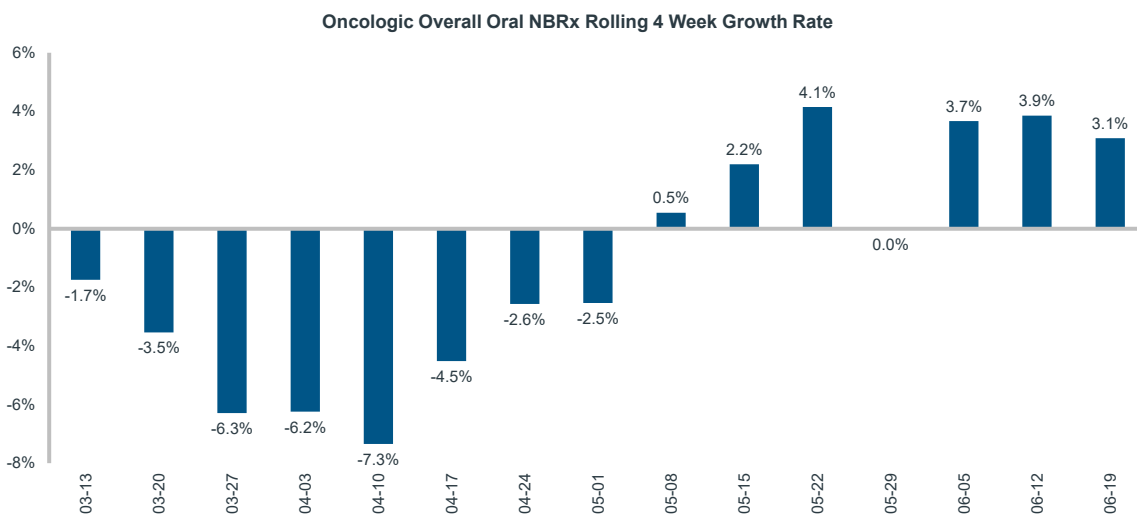
Oral oncology agents are showing growth while IV oncology agents show some minor volatility as physicians continue to adapt to altered prescribing patterns resulting from the pandemic

With significant increases in total healthcare (outside of the Hem/Onc offices), other routes of administration are returning to baseline demand rates driven by increased usage of topical oncologic agents

Notes: Limited to oncology market. COVID period average weekly (rolling 4-weeks) pack units, index period: 4-week ending with 2/28/20; Source: IQVIA WSP
COVID-19 Market Impact - w/e June 19, 2020

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New to brand starts have surpassed baseline as patient activity continues to fill the backlog created by the pandemic



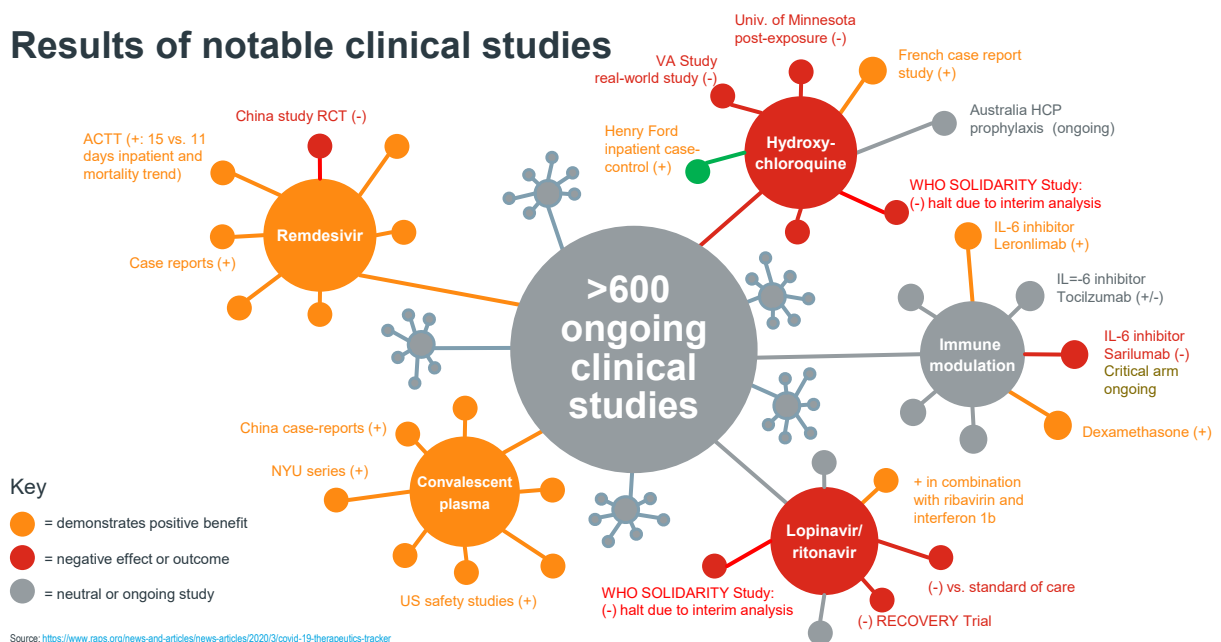
Notes: Limited to oncology market. COVID period 4-week average weekly volume (NBRx); Source: IQVIA Weekly Patient Insights
COVID-19 Market Impact - w/e June 19, 2020

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Closing Thoughts

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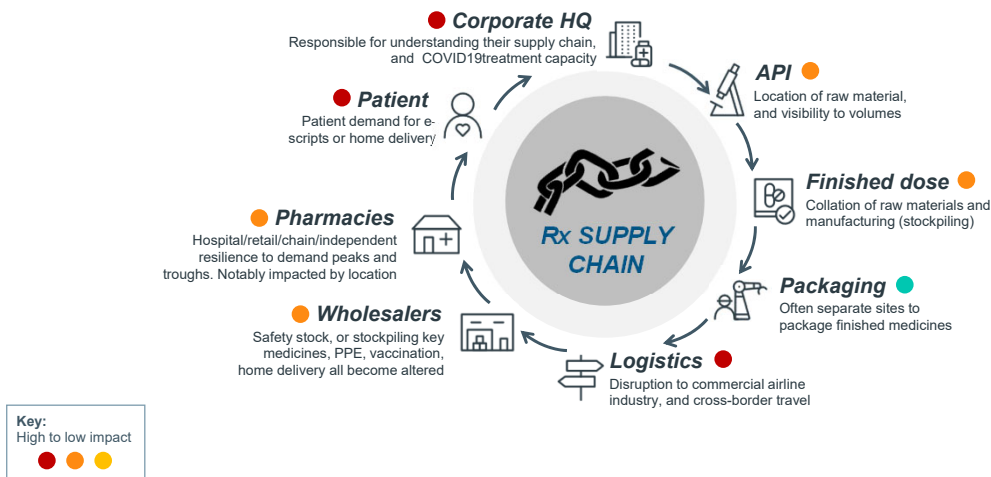
Results of notable clinical studies



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COVID-19 is undoubtedly a major supply chain disruptor

Real implications for the supply chain affect multiple points to be discussed



IQVIA Global Supplier & Association Relations Perspectives, June 2020

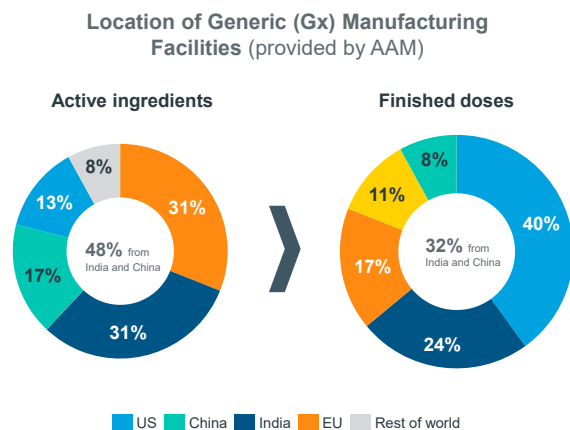
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Focus towards international availability of API and logistics

There are risks that the required supply will not be problematic, now and for the future



- China manufacturing is **coming back on line**
 - Slipped by 10% to 20% during early days of outbreak
- India **lock-down and export ban affect supply**
 - 21-day lock down; essential services including pharmaceutical manufacturing are allowed to continue
 - Ban on export of 26 APIs, including paracetamol, in March; mostly lifted in April
- Air freight shortage** limits access to medicines
 - Medicines for Europe have called for the EU to make use of grounded commercial aircraft for drug supply
 - In the US cargo capacity is less than 50% of normal. Rates that are 4-6X normal rates
- Suppliers **reduce employees per shift** to ~50 – 65% of historic levels
- Manufacturers are seeing **increased costs** on raw materials and transportation

Sources: AAM's SVP of Sciences and Regulatory Affairs provided testimony at the House Energy and Commerce Health Subcommittee: FDA FY2020 data, <https://accessibility.ims.org/resources/blog/aam-testimony-generic-global-supply-chain-func-january-2020> and <https://accessibility.ims.org/resources/blog/aam-testimony-generic-global-supply-chain-func-january-2020>; Interviews with supply stakeholders from IQVIA Industry Relations (April 2020); <https://www.fiercepharma.com/manufacturing/theses-gps-flowing-but-indian-ban-hinders-u-s-approval-hydroxychloroquine>; <https://www.medicinesforeurope.com/wp-content/uploads/2020/03/Public-statement-COVID-Air-freight-21-March-2020.pdf>

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Supply chain is now a recognised pillar of medical innovation

Wholesalers and pharmacies are national / regional strategic assets to the system

Pre-COVID19 model

- Limited visibility to the flow of goods within the system
- Limited public awareness, and low perception



Post-COVID19 model

- Strategic asset to companies and governments
- Increasing transparency + centralised data collection
- Top-tier government priority

- Most Governments have implemented key measures
 - Approving electronic prescriptions
 - Essential status to wholesaler operations
 - Economic Incentives
- National Critical drugs list
- Stockpiling Strategy for future pandemic
- Measures to improve transparency
- Policy pressure to in-source/diversify manufacturing
- Higher security in delivery results in higher cost
- Unclear whether these initiatives will maintain momentum or fade as crisis fades

Global Supplier & Association Relations perspectives – May 2020

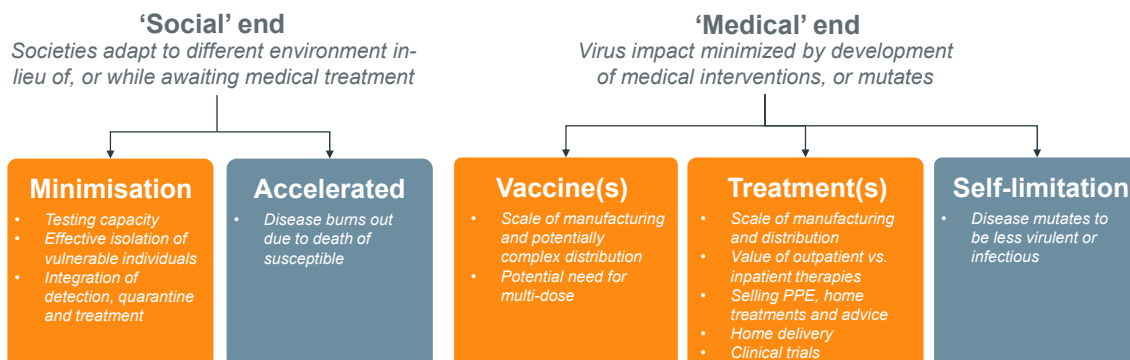
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Regardless of how the pandemic ends, supply is key

Perspectives on future scenarios



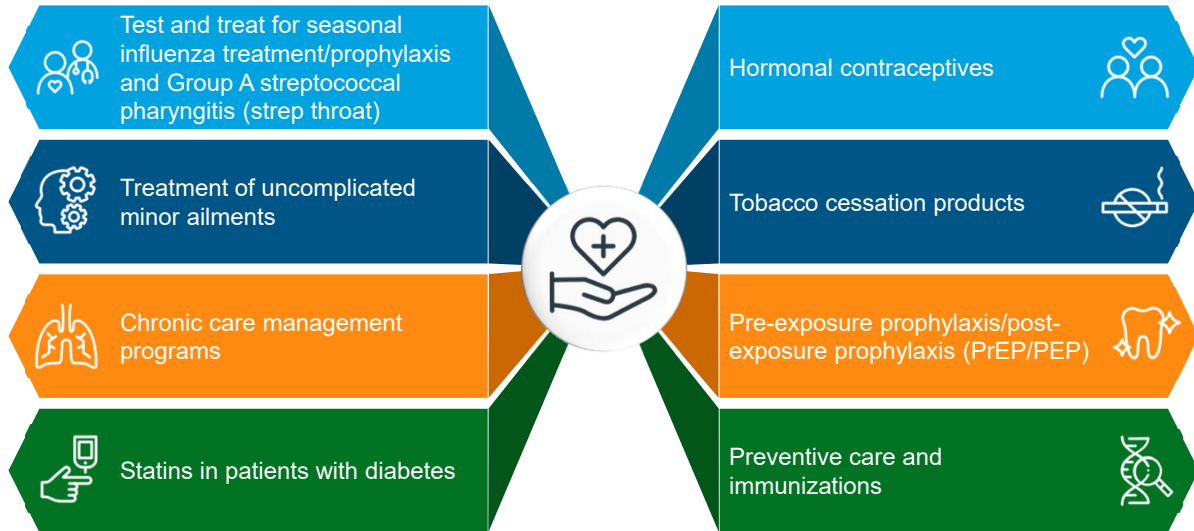
Source: IQVIA Global Supplier & Association Relations perspectives, May 2020; <https://www.nytimes.com/2020/05/10/health/coronavirus-plague-pandemic-history.html>

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Pharmacist-provided services can have an impact on patient access



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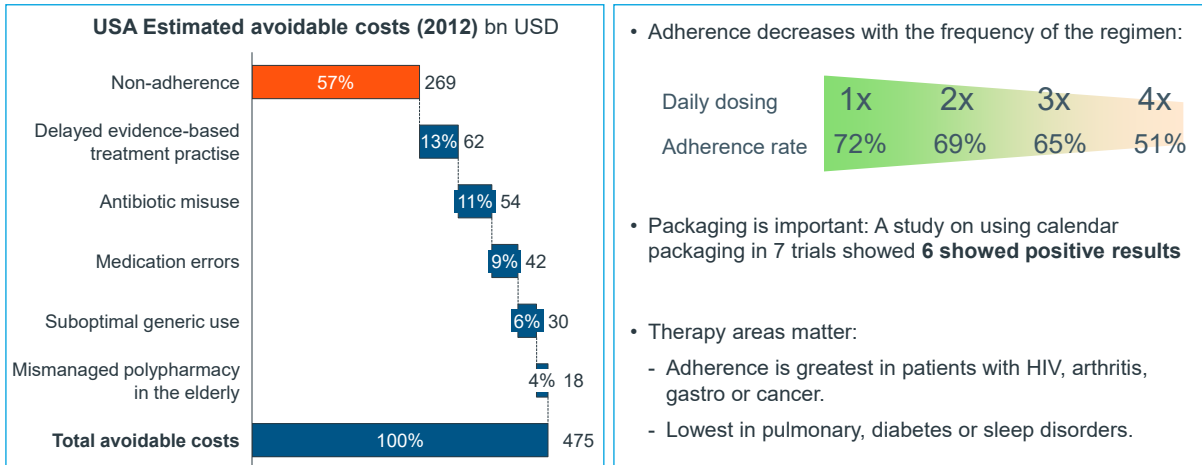
Patients visit pharmacies 10x more frequently than they see other healthcare providers¹



¹ Hemberg N, Huggins D, et al. Innovative Community Pharmacy Practice Models in North Carolina. North Carolina Medical Journal. June 2017. <http://www.ncmedicaljournal.com/content/78/2/198.full>

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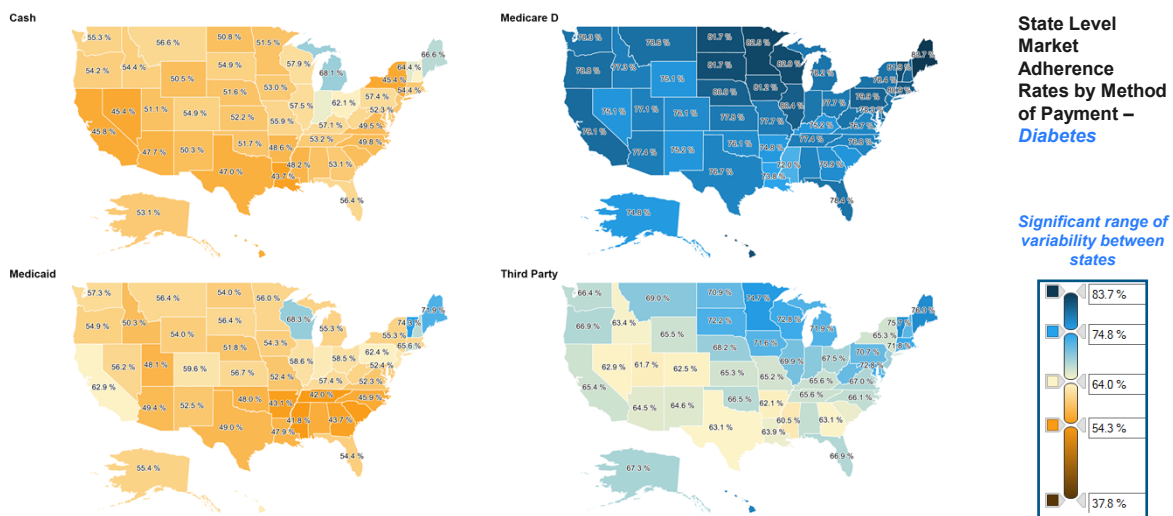
Compliance is undoubtedly the biggest source of inefficiency and opportunity



Source: IQVIA European Thought Leadership; IQVIA Institute 2012 'Responsible use of Medicine'; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3711878/>; <http://annals.org/aim/fullarticle/1357338>

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Adherence is not uniform regionally and varies by different factors, such as method of payment: Med D is most adherent



Source: IQVIA, State Level Market Adherence Rates by Method of Payment, MAT December 2018

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Thank you

Disclaimer:

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Doug Long, *Vice President, Industry Relations*

Doug Long is Vice President of Industry Relations at IQVIA (formerly QuintilesIMS), the world's largest pharmaceutical information company. IQVIA offers services to the pharmaceutical industry in over 100 countries around the globe. Doug has been with IQVIA since 1989.

His fundamental task is to help secure data for all existing and new databases supported by IQVIA, manage supplier, manufacturer & association relationships, and develop information for data partners. As direct consequence of his involvement in these areas, Doug has considerable experience with, and a unique perspective on, the changing U.S. and global healthcare marketplace and pharmaceutical distribution.

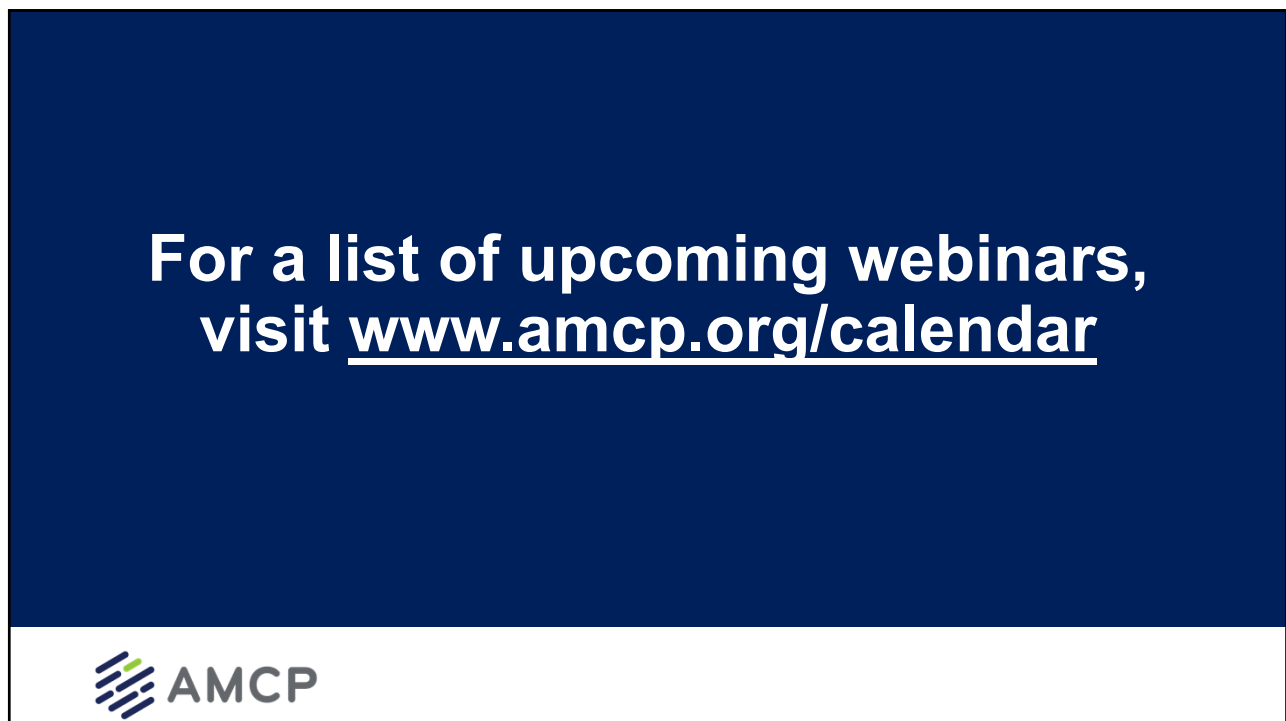
Doug is a frequent industry speaker and the recipient of many awards from trade groups. Before joining IQVIA Doug held positions at Nielsen Market Research for 16 years in various sales and marketing capacities. A native of Illinois, Doug received a BA from DePauw University and holds an MBA in management from Fairleigh Dickinson University.

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