

Data and modeling to inform COVID-19 policy decisions in Washington State

July 10th 2020

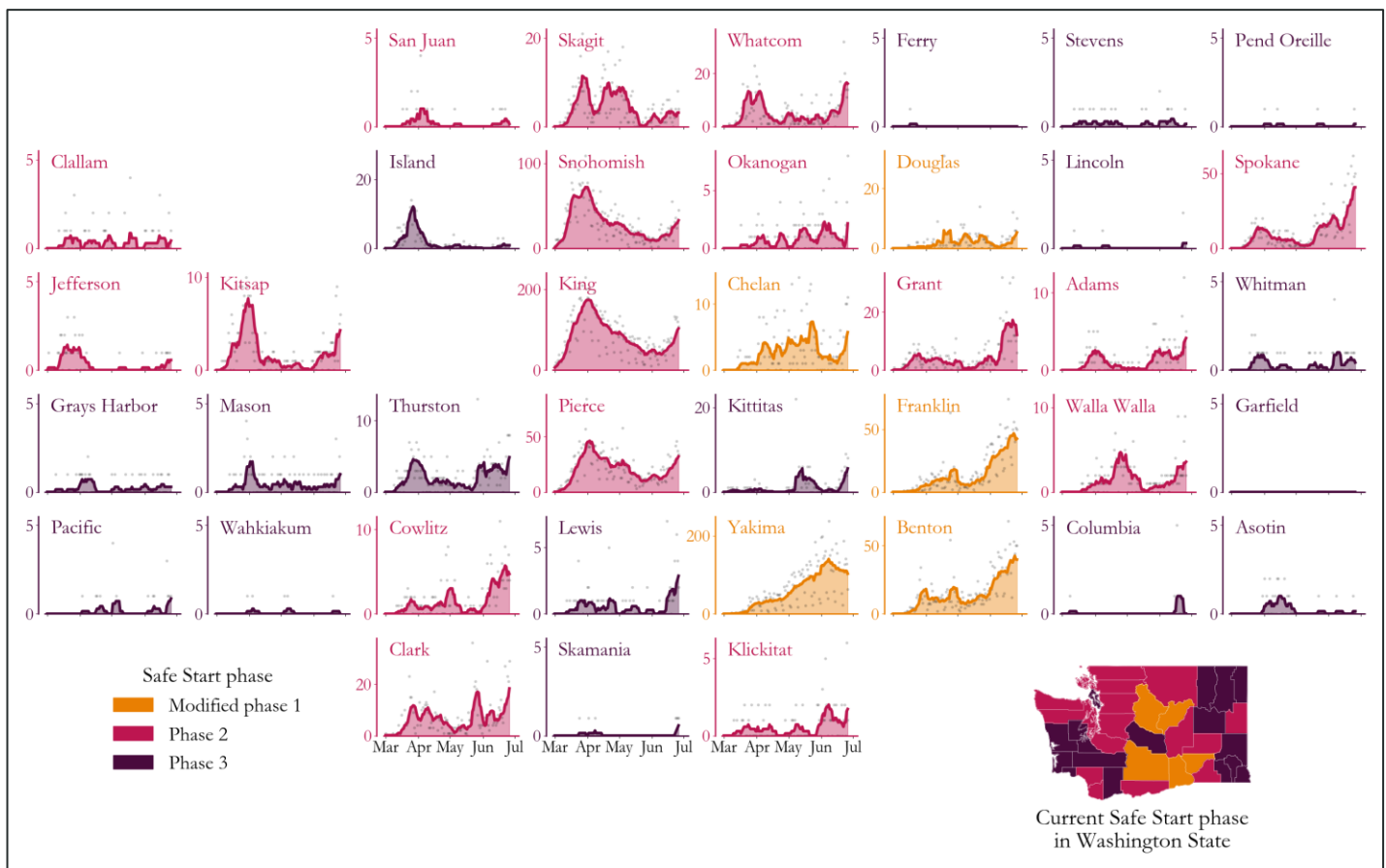
Key Questions

What is the current trend in the statewide burden of COVID-19 infection?

What are the reasons for regional variations in COVID-19 infection?

How should policy decisions address widespread upticks in transmission?

The graphic below shows 7 day rolling average case counts by county for Washington State, color coded by Safe Start phase. The latest estimate of the reproductive number (R_e) for western Washington is 1.59 (95% CI 1.32 to 1.87) as of June 21 and recent increases in test positive rate in western Washington demonstrate that the uptick is not being driven by increases in testing. The latest estimate of R_e for eastern Washington is 1.20 (95% CI 1.06 to 1.34) as of June 21. Test positive rates in eastern Washington (14.5% as of June 21) are substantially higher than in western Washington (4.3% as of June 21).



Current situation. In western Washington, multiple signals indicate that recent upticks in case counts are due to increased community transmission. In particular, test positive rates are increasing in the Puget Sound Region despite increased testing. In Yakima County case counts appear to be plateauing, and although test-positive rates are decreasing they remain very high (23.0%). There's the potential for exponential growth to resume if behaviors that have reduced transmission are relaxed. Case counts in Spokane county continue to rise as testing volume and test positive rates have risen. In the Benton Franklin region, test-positive rates have slightly decreased but remain concerning (22.5%). Case counts are rising as testing volume has increased.

In both western and eastern Washington, the largest increases in case counts are being observed among younger cases (< 40 years old). There is evidence that some of this increase in western Washington is being driven by social interactions, but no clear evidence that participating in demonstrations has played a role. In eastern Washington, increases in cases in agricultural workers may be driving increases in younger age groups.

Hospitalizations in both western and eastern Washington have been increasing among all age groups, although these increases are slower in older age groups. If the increases in cases in younger age groups result in increasing transmission to more vulnerable age groups, we expect to see further increases in hospitalizations and deaths in the coming weeks.

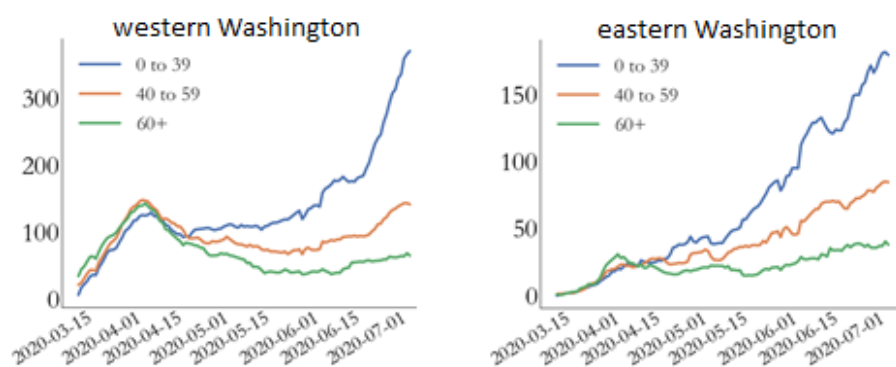


Figure 1. Case counts by age group in western Washington (left) and eastern Washington (right)

Short-term outlook: These observations indicate clearly that Washington state finds itself in a precarious situation with respect to COVID-19 control. Under maintenance of current conditions, case counts in both western and eastern Washington are likely to accelerate. It is possible that policies instituted to protect essential workers and limit community spread (principally mask wearing) may be showing benefit in Yakima, but the role of each particular policy in any flattening of the case counts is not yet clear.

School reopening: While school closures played a significant role in mitigating epidemic spread in Washington State and across the country, they have also imposed costs on children and families – a cost felt most acutely by low-income and communities of color. Results from IDM's agent-based model of COVID-19 transmission suggest that in order for schools to reopen without ensuing epidemic growth, community transmission will need to be controlled. The most recent levels of disease transmission in many parts of the state are too high to support school reopening at this time. However, if the effective reproductive number can be brought below one prior to schools reopening, then it may be possible with certain combinations of mitigation activities to reduce epidemic spread.

Moving from reopening to coexistence: As we move from a situation of reopening society to coexisting with COVID-19 we are assessing modeling and data needs going forwards. These fall into three areas: (1) understanding policy questions and options (2) developing models to address these questions and (3) acquiring relevant data to feed models and track the situation.