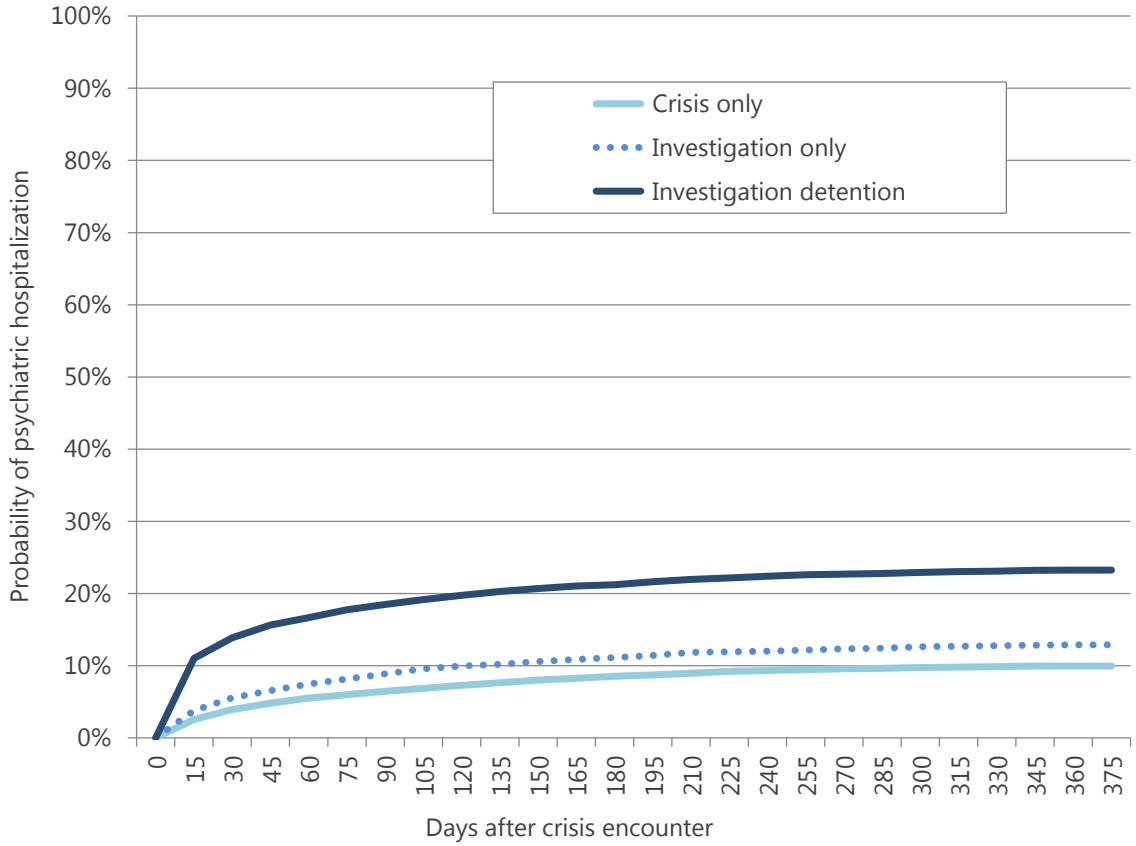
Exhibit 11

12-month Unadjusted Psychiatric Hospitalization Outcomes Following in-Person Crisis Intervention, 2014



Intervention type	Adults	12-month hospital admissions
Crisis-only	20,852	2,077 (10%)
Investigation-only	5461	704 (13%)
Investigation-detention	4566	1,061 (23%)
Total	**30,879**	**3,842 (12%)**

Source: WSIPP analysis of DSHS Client Outcome Database (CODB).

By definition, persons with an involuntary treatment admission are hospitalized immediately following the investigation that occurs as a result of the crisis encounter. To follow hospitalization outcomes in a consistent manner, we exclude any hospital episode where a patient was admitted for inpatient treatment within two days of a crisis encounter. We analyze any subsequent hospital admissions that occur following this initial treatment episode.

Among 30,879 adults with a crisis encounter in 2014, 12% had a psychiatric hospitalization within the next 12 months. As Exhibit 11 shows, the probability of later hospitalizations varies by intervention type, from a 10% for crisis-only encounters to 23% for adults following an involuntary treatment detention.

The event history model (see Exhibit A4 in the Appendix) indicates that an individual's age, sex, and race had little or no influence on the risk of subsequent psychiatric hospitalization following a crisis intervention. Factors that relate to adjusted risk of hospitalization include the following:

- Each prior hospital stay in the three years before the crisis encounter was associated with a 14% higher risk of a subsequent admission.
- Clients with crisis response services in King, Spokane, and Pierce counties had the highest risk of psychiatric hospitalization (after controlling for caseload differences). The adjusted risk of subsequent hospitalization was lower in Southwest Behavioral Health, Greater Columbia, Grays Harbor, and Chelan.
- Persons eligible for publicly-funded services had a 75% higher risk of subsequent hospitalizations.
- Relative to crisis-only clients, the investigation-only group had a 36% higher risk and persons with an involuntary detention had a 68% higher risk of later hospitalizations (after controlling for treatment history, demographic and regional differences).

Jail bookings. Recent research on Washington's jail population found that 58% of recent Medicaid recipients with a jail booking also had an identified mental health treatment need.[12] While previous studies examined the mental health needs for adults in jail, this analysis reports on the likelihood of jail bookings among the adult population receiving crisis mental health services in Washington.

For the 30,879 adults with crisis services in 2014, over one in five (22%) were booked into a Washington State jail in the year following a crisis mental health encounter. Persons with an involuntary treatment detention had the lowest 12-month jail booking rate, with 18% jailed following release from an involuntary treatment hold. Conversely, 23% of adults in the crisis- or investigation-only groups were booked into jail over this 12-month period (Exhibit 12, next page).

Persons held for involuntary mental health treatment are deemed to be at high risk of danger to themselves or others. Based on this analysis, it appears that this risk may largely be due to a grave disability or danger to self—these individuals are at slightly lower risk of criminal activity compared to other persons with a crisis mental health encounter.

[12] Henzel, P., Mayfield, M., Soriano, A., & Felver, B. (2016). *Behavioral health needs of jail inmates in Washington State* (Doc. No. 11.226). Olympia: Washington State Department of Social and Health Services, Research and Data Analysis. Available from: https://www.dshs.wa.gov/sites/default/files/SESA/rda/documents/research-11-226a.pdf.

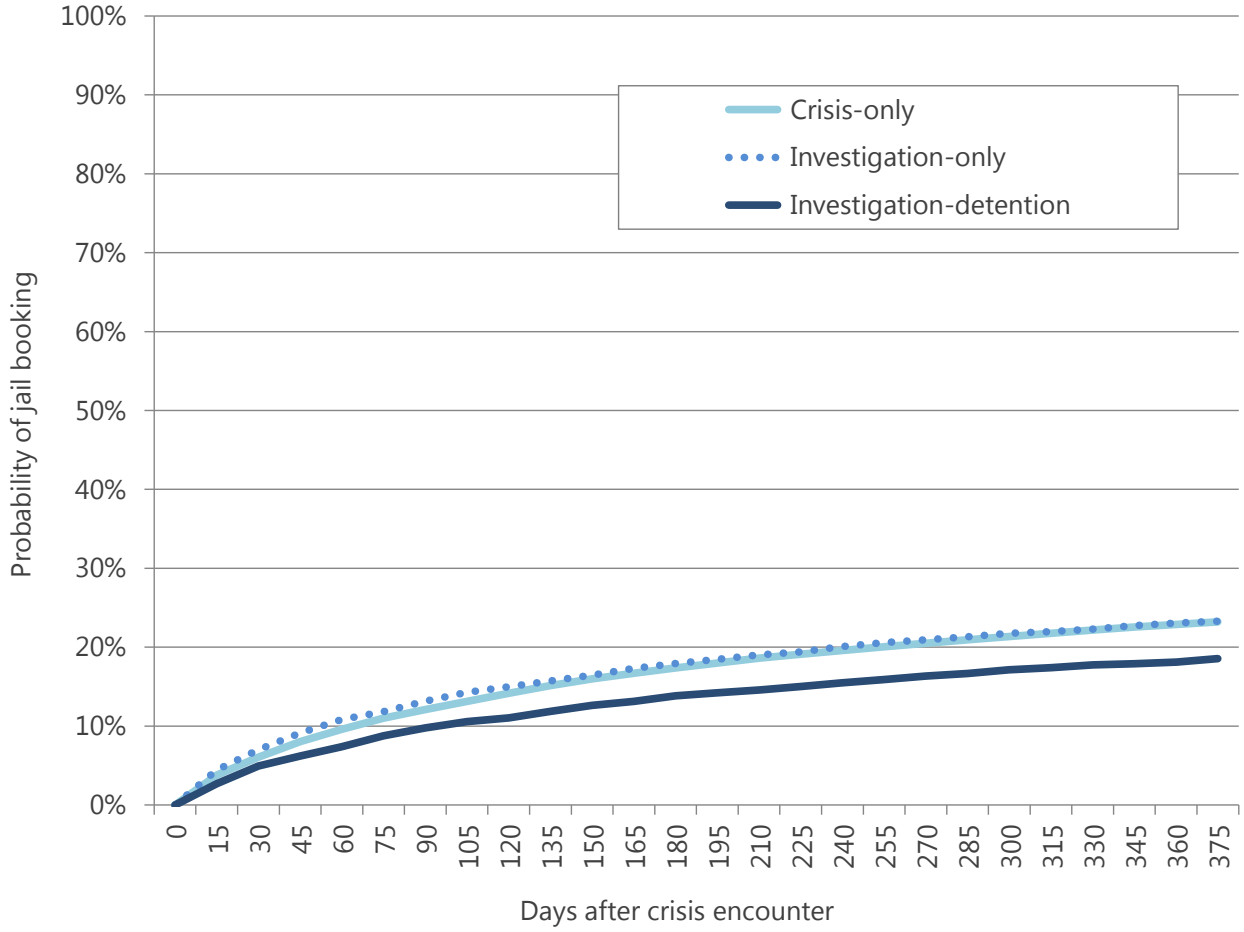
The event history model accounted for an individual's level of risk and other factors to estimate the adjusted probability of a jail booking following crisis services. The results (see Exhibit A5 in the Appendix) demonstrated the following:

- Demographic factors showed a strong relationship to likelihood of a jail event. Age was inversely related to jail bookings—each year of age was associated with a 2% reduction in jail risk. Compared to women, men were 65% more likely to enter jail.
- Each prior booking in the last three years was related to a 14% higher risk of a subsequent jail booking. Persons with a potential need for alcohol or drug treatment had a 76% higher risk of jail bookings.

Mortality. Mental health crisis responders are trained to de-escalate situations that may pose a danger to public safety or may result in an individual causing harm to him or herself. Suicide prevention and intervention involves identifying the likelihood and immediacy of a potential suicide threat and engaging at-risk individuals in appropriate treatment and monitoring. Given the scope of this study, we cannot identify a causal link between crisis mental health responses and prevention of suicide. However, we are able to track mortality rates and cause of death for adults in the study. Overall, 935 persons (3% of the study population) died in the year following a crisis response (Exhibit 13, page 20). Unadjusted mortality rates are highest among adults with an involuntary treatment detention. However, most of these deaths are from natural causes—only 10% of deaths were attributed to suicide (n = 20). In contrast, 19% of deaths for persons in the investigation-only group are deaths by suicide (n = 38).

Exhibit 12

12-month Unadjusted Jail Booking Outcomes Following Crisis Intervention, 2014



Intervention type	Adults	12-month jail bookings
Crisis-only	20,852	4,789 (23%)
Investigation-only	5,461	1,262 (23%)
Investigation-detention	4,566	829 (18%)
Total	**30,879**	**6,880 (22%)**

Source: WSIPP analysis of DSHS Client Outcome Database (CODB) and Jail Booking Reporting System (JBRS).

Exhibit 13

12-month Mortality Outcomes Following Crisis Intervention, 2014

Intervention type	Adults	12-month mortality outcomes	Death by suicide (% deaths)
Crisis-only	20,852	526 (3%)	66 (13%)
Investigation- only	5,461	201 (4%)	38 (19%)
Investigation-detention	4,566	208 (5%)	20 (10%)
Total	**30,879**	**935 (3%)**	**124 (13%)**

Source: WSIPP analysis of DSHS Client Outcome Database (CODB) and DOH Vital Statistics data.

With the small observed number of suicides that occurred during the study period, we could not create reliable statistical models for this outcome. However, nearly all (95%) of the observed death by suicide events occurred for nonelderly individuals (under age 65). To determine risk of death among this population, we developed an event history model (see Exhibit A6 in the Appendix) and found the following:

- Adjusted risk of death was four times higher for persons age 45-54 and over eight times higher for those age 55-64 relative to younger adults. Men had a 60% higher risk compared to women.
- There were no observed regional differences in adjusted mortality rates.
- Nonelderly clients with high-cost medical conditions had a 32% increased likelihood of death.[13]
- Nonelderly adults with an involuntary treatment detention had a 24% higher risk of death, while mortality risk for adults in the investigation-only group was 47% higher compared to the crisis-only group.

Summary of Outcomes

This longitudinal analysis of crisis mental health services provides a wide-ranging look on adverse outcomes following a crisis encounter. Without a similar control group, this study cannot conclusively determine the extent to which crisis services alter client outcomes. However, this research illustrates the intersection between the crisis mental health/involuntary treatment system and other systems that serve persons experiencing psychiatric emergencies. The findings are summarized in Exhibit 14.

Exhibit 14

Summary of 12-month Outcomes Following Crisis Intervention, 2014

Post-crisis encounter outcome	Crisis-only	Investigation-only	Investigation-detention
Emergency department (Medicaid only)	50%	47%	34%
Psychiatric hospitalization	10%	13%	23%
Jail booking	23%	23%	18%
Mortality—all	3%	4%	5%

Source: WSIPP.

[13] Client health status was determined using the Combined Diagnostic and Pharmacy Based Risk Adjustment (CDPS+Rx) model. See "The Revision of CDPS and the Development of a Combined Diagnostic and Pharmacy Based Risk Adjustment Model", Available from: http://cdps.ucsd.edu/CDPS_Update.pdf. High cost defined as CDPS score of 1.5 or higher.

Appendix

Crisis Mental Health Services and Inpatient Psychiatric Care: Capacity, Utilization, and Outcomes

Analysis of Statutory Changes and Available Beds

Washington State's Involuntary Treatment Act (ITA) authorizes a treatment commitment when an investigator determines that an individual, as a result of a mental illness, is either gravely disabled or a danger to self or others. In recent years, the Washington State Legislature expanded statutory commitment criteria with three notable revisions:

1. New legal criteria explicitly permit an investigator to consider **historical behavior or prior commitments** in deciding if treatment was necessary.
2. Information regarding the need for treatment can be obtained from **credible witnesses**, which includes anyone with "significant contact and involvement with the person."
3. If an individual does not present as dangerous or gravely disabled, but demonstrates "marked and concerning" **changes in symptoms or behavior that have previously led to a past incidents** or deterioration of mental health, a civil commitment may be warranted.[14]

These statutory revisions were originally proposed in 2010[15] and scheduled to take effect by January 2012. In 2011, the legislature delayed implementation of these criteria until July 2015.[16] However, a final legislative change in 2013[17] accelerated the adoption of this statute and new commitment criteria were enacted in **July 2014**.

In the month following the implementation of new commitment criteria, the Washington State Supreme Court issued a major ruling regarding treatment requirements for individuals subject to the state's involuntary commitment laws. The August 2014 decision held that patients could not be detained, or "boarded," in emergency departments or other temporary arrangements without proper psychiatric treatment.[18] The court ruling prohibited further involuntary placements unless the admitting hospital or treatment facility could attest that required psychiatric treatment would be provided to patients. To ensure that adequate treatment resources were available, the court granted a request by the state of Washington to stay the ruling until **December 2014**.

These two events—the adoption of new commitment criteria and a directive to provide an adequate number of psychiatric treatment beds—represented a notable change to the system for mental health commitments in Washington State. Since both of these changes occurred at approximately the same time (July & December 2014), it is not feasible to estimate the effect of one event independent of the other. However, this direct shift in the legislative and legal landscape creates an opportunity to examine how psychiatric treatment bed availability (or lack thereof) may affect involuntary commitment decisions.

An inter-relationship between two systems can make it difficult to identify possible cause and effect relationships. In this case, legal changes that result in an increase (decrease) on the involuntary commitment rate may affect the decision to make more (less) treatment beds available. Conversely, the

[14] RCW 71.05.212.
[15] Second Substitute House Bill 3076, Chapter 280, Laws of 2010.
[16] Substitute House Bill 2131, Chapter 6, Laws of 2011, 2nd Special Session.
[17] Engrossed Substitute Senate Bill 5480, Chapter 335, Laws of 2013.
[18] IN RE: the DETENTION OF D.W., No. 90110-4, SUPREME COURT OF WASHINGTON, 181 Wn.2d 201 (2014).

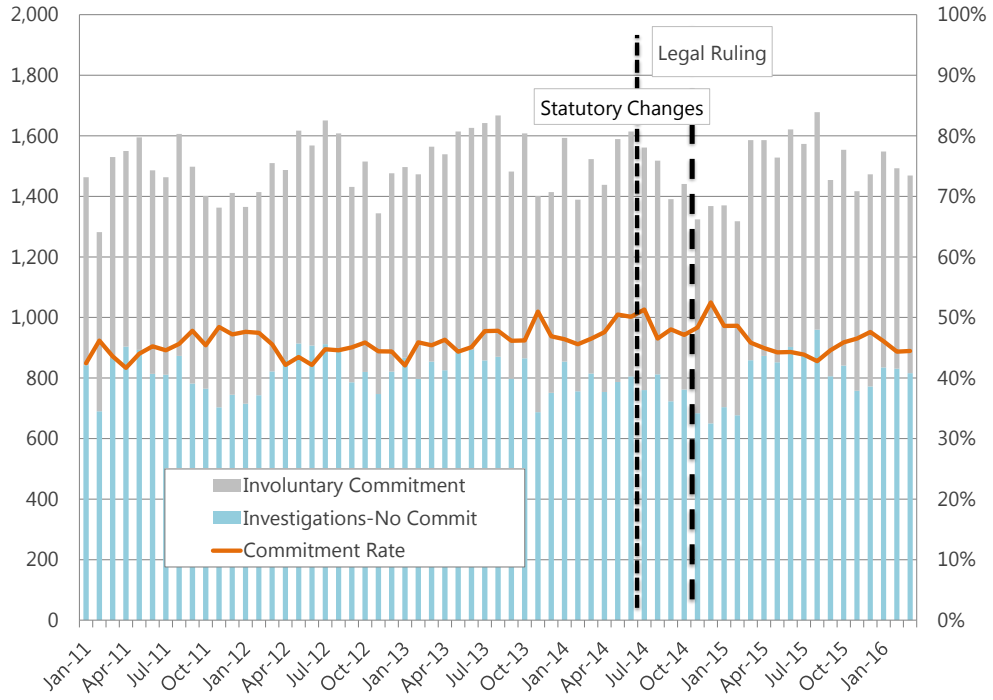
addition (or reduction) of psychiatric beds may affect the probability that an involuntary commitment takes place.

When this type of interdependency is present, the underlying relationship may be estimated when an unexpected external event—such as a judicial mandate—occurs to the system. The results presented here are based on an analysis of the relationship between bed capacity and commitment rates in the period before and after the 2014 court ruling and statutory changes.

Exhibit A1 shows that there were between 1,400 and 1,600 ITA investigations conducted every month in Washington State between 2011 and 2016. The percentage of these investigations that resulted in an initial commitment fluctuated during this period, but slowly increased from 42% in early 2011 to over 50% by late 2014. The months with the highest commitment rates during this period occurred in July 2014 (51%), when the statutory changes took effect, and December 2014 (53%), when the stay on the court ruling was lifted.

Exhibit A1

Washington State Adult Monthly Involuntary Commitment Rate
2011-2016



Source: WSIPP analysis of Service Encounter Reporting data (Division of Behavioral Health and Recovery).

To determine how fluctuations in commitment rates were influenced by legal and statutory changes, we created a dataset that included monthly totals of investigations and commitments for each of the 12 courts in Washington State that hear ITA cases. The dataset also included information about the caseload composition (age, sex, race) in each court region. Finally, we included monthly psychiatric bed capacity for nearby hospitals and E&T facilities in each area.

Exhibit A2 (next page) presents the results of the statistical analysis that estimates the probability of commitment, based on the combined effect of these various factors. This model indicates that race and gender differences in the caseload mix in each court were not significantly related to changes in the commitment rate. In addition, the number of beds licensed in each region for a given month did not show a statistically significant relationship to commitment rates. As a practical matter, this finding is consistent with the intent of the law—commitment decisions are made based on investigator diagnosis and assessment of risk (not bed availability or client characteristics).

After considering available capacity and other regional factors, the model determines the extent to which commitment rates changed in the period before and after July 2014 (when statutory changes took effect). As shown in Exhibit A2 (next page), there was a small, but temporary, increase in the predicted commitment rate immediately after this period. However, in the months following the statutory changes, the adjusted commitment rate declined steadily. This analysis illustrates that while utilization remained high for psychiatric treatment facilities, this trend did not appear to be influenced by the results of involuntary treatment investigations.

Exhibit A2

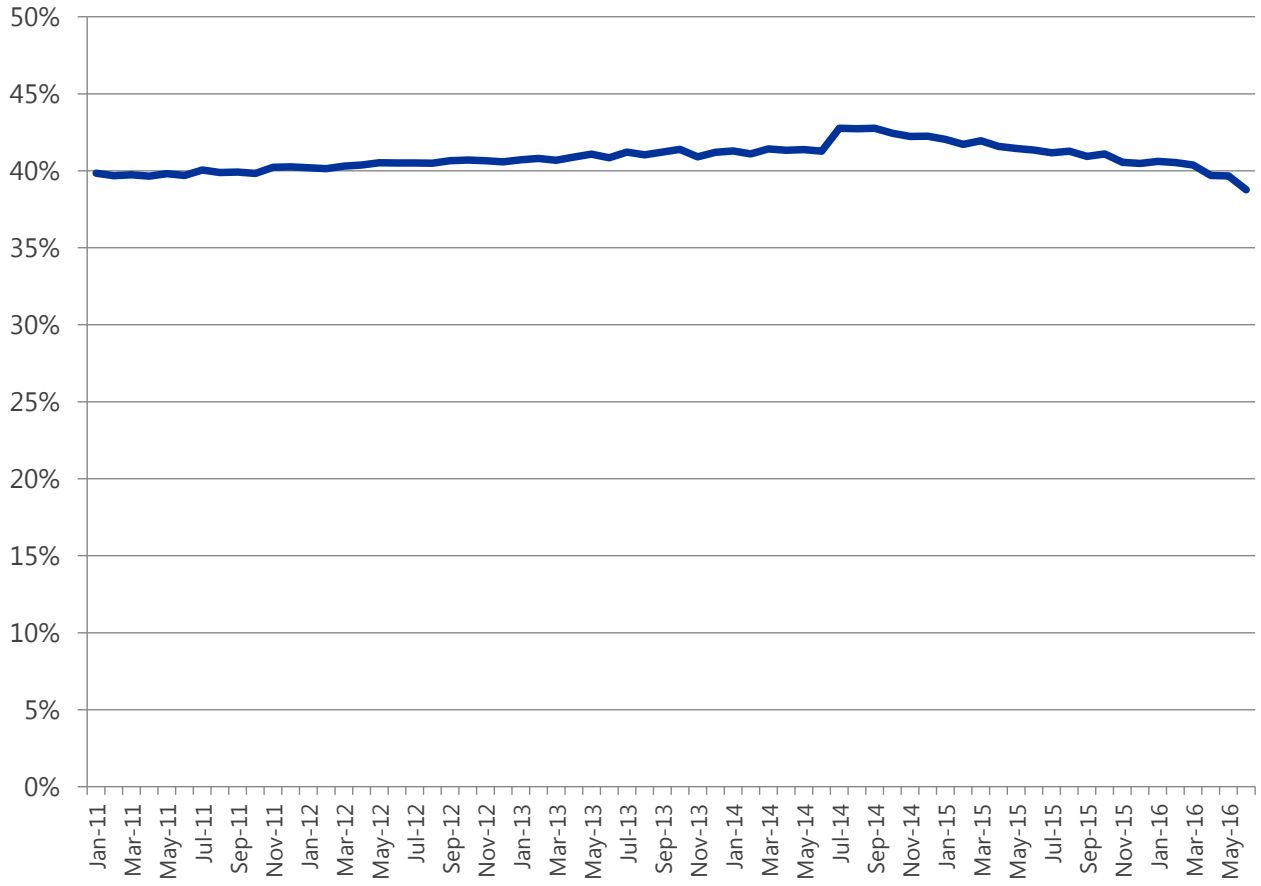
Commitment Rate Model and Predicted Effect of 2014 Changes to ITA Statute—
Mixed Effects Regression Model

Variable	Coefficient	Lower 95% confidence limit	Upper 95% confidence limit	p
Fixed effects				
Intercept	**34.878**	22.722	46.994	<0.001
Time trend (linear)	0.042	-0.132	0.216	0.639
New statute implemented (Jul 2014)	**9.885**	2.123	17.647	0.013
Time by statutory change interaction	**-0.198**	-0.353	-0.043	0.012
Monthly bed total	0.999	0.995	1.002	0.458
Percent caseload male	0.016	-0.065	0.096	0.706
Percent caseload Caucasian	0.025	-0.079	0.129	0.636
Percent caseload senior	0.118	-0.032	0.266	0.122
Random effects—court jurisdiction				
Standard deviation of time trend	0.282	0.183	0.436	
Standard deviation of intercept	12.520	2.743	8.150	

Notes:
N courts = 11 log likelihood ratio = -2268.5893.
N court-months (observations) = 675 LR test vs. linear model: chi2(2) = 574.51 (p < 0.001).

Exhibit A3

Predicted Probability of Involuntary Treatment Commitment
January 2011-June 2016



Source: WSIPP analysis—fitted results from Exhibit A2.

Exhibit A4

Psychiatric Hospitalization Outcomes—Event History Model

Variable	Hazard rate	Lower 95% confidence limit	Upper 95% confidence limit	p
Fixed effects				
Age	0.999	0.996	1.001	0.182
Male	1.042	0.976	1.112	0.222
Nonwhite	1.000	0.926	1.079	0.999
Hispanic	0.884	0.767	1.02	0.092
Crisis intervention time (each 30 minute)	0.999	0.995	1.002	0.458
Previous psychiatric hospitalizations (last three years)	**1.168**	1.153	1.183	<0.001
Covered diagnosis (access to care)	**1.823**	1.679	1.979	<0.001
Alcohol/other drug event	**1.160**	1.080	1.246	<0.001
Investigation-only*	**1.319**	1.198	1.452	<0.001
Investigation-detention*	**1.743**	1.601	1.897	<0.001
Prior crisis intervention (days)	**1.005**	1.003	1.007	<0.001
Outpatient treatment days (following crisis intervention)	**1.064**	1.059	1.069	<0.001
Random effects (RSN)				
Chelan/Douglas	**0.590**	0.433	0.803	<0.001
Grays Harbor	**0.811**	0.600	1.096	0.022
Greater Columbia	**0.719**	0.593	0.871	0.002
King	**1.436**	1.206	1.711	<0.001
North Sound	1.031	0.856	1.242	0.552
Peninsula	1.008	0.824	1.233	0.966
Pierce	**1.193**	0.99	1.438	0.034
Southwest Behavioral Health	**0.887**	0.72	1.093	0.028
Spokane	**1.146**	0.958	1.371	0.001
Thurston/Mason	1.363	1.109	1.676	0.384
Timberlands	0.816	0.624	1.067	0.478

Notes:
Likelihood Ratio: 2682.6205*reference crisis-only.
Bold hazard rates significant at $p < 0.05$.

Exhibit A5

A. III. Jail Booking Outcomes—Event History Model

Variable	Hazard rate	Lower 95% confidence limit	Upper 95% confidence limit	p
Fixed effects				
Age	**0.978**	0.976	0.979	<0.001
Male	**1.654**	1.574	1.737	<0.001
Nonwhite	1.054	0.999	1.112	0.057
Hispanic	**1.133**	1.036	1.239	0.006
Crisis intervention time (each 30 minute)	0.998	0.996	1.001	0.286
Previous jail bookings (last three years)	**1.142**	1.138	1.146	<0.001
Investigation-only*	1.053	0.982	1.13	0.146
Investigation-detention*	**0.750**	0.693	0.812	<0.001
Prior crisis intervention (days)	**1.006**	1.004	1.008	<0.001
Covered diagnosis (access to care)	0.969	0.919	1.021	0.233
Alcohol/other drug event	**1.769**	1.681	1.861	<0.001
Outpatient treatment days (following crisis intervention)	**0.980**	0.974	0.986	<0.001
Random effects (RSN)				
Chelan/Douglas	1.041	0.914	1.184	0.320
Grays Harbor	0.946	0.821	1.091	0.432
Greater Columbia	1.002	0.920	1.092	0.946
King	0.874	0.797	0.958	0.053
North Sound	1.002	0.914	1.098	0.963
Peninsula	1.043	0.941	1.156	0.146
Pierce	**0.866**	0.788	0.952	0.049
Southwest Behavioral Health	0.966	0.871	1.072	0.492
Spokane†	**1.243**	1.146	1.348	<0.001
Thurston/Mason	0.949	0.839	1.072	0.391
Timberlands	**1.068**	0.946	1.206	0.028

Notes:

Likelihood ratio: 6075.732.

*Reference crisis-only.

Bold hazard rates significant at $p < 0.05$.

†During the time this study took place, Spokane County Jail was the only jail in the state that also contracted directly with the RSN as an authorized community mental health agency (see http://www.hca.wa.gov/documents/health_homes/RSN%20_CMHAContactList.pdf). While clients in Spokane were 24% more likely to have subsequent jail booking, the population with recorded crisis services in this region differed from other areas, which may influence criminal justice related outcomes.

Exhibit A6

Mortality Outcomes—Event History Model

Variable	Hazard rate	Lower 95% confidence limit	Upper 95% confidence limit	p
Fixed effects				
Age 25-34	1.422	0.967	2.091	0.074
Age 35-44	**2.366**	1.634	3.427	<0.001
Age 45-54	**3.956**	2.787	5.615	<0.001
Age 55-64	**8.452**	5.998	11.909	<0.001
Male	**1.603**	1.375	1.869	<0.001
Nonwhite	**0.749**	0.615	0.912	0.004
Hispanic	0.762	0.533	1.089	0.136
Diagnosis risk score	**1.323**	1.287	1.360	<0.001
Crisis intervention time (each 30 minute)	0.998	0.989	1.007	0.659
Investigation-only*	**1.474**	1.225	1.774	<0.001
Investigation-detention	**1.242**	1.008	1.532	0.042
Prior days of outpatient treatment	**0.999**	0.998	1.000	0.013
Random effects (RSN)				
Chelan/Douglas	0.999	0.980	1.019	0.953
Grays Harbor	1.000	0.981	1.02	0.990
Greater Columbia	1.000	0.981	1.020	0.998
King	1.001	0.982	1.021	0.856
North Sound	1.000	0.981	1.020	0.951
Peninsula	1.000	0.980	1.019	0.962
Pierce	1.001	0.982	1.021	0.863
Southwest Behavioral Health	0.999	0.979	1.019	0.891
Spokane	1.000	0.980	1.019	0.957
Thurston/Mason	1.000	0.980	1.020	0.981
Timberlands	0.999	0.980	1.019	0.939

Notes:
Likelihood ratio: 698.3899.
*Reference crisis-only.
Bold hazard rates significant at $p < 0.05$.

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