

Performance-based Standards for Youth Correction and Detention Facilities

2011 Research Report



Table of Contents

Executive Summary	3
Literature Review	5
Methods	7
Results	10
PbS Safety, Order and Security Outcomes	10
Hierarchical Linear Models Predicting Victimization	17
Suicide Attempts.....	19
Conclusion.....	21
References.....	23
Appendix 1. List of Variables	24





Executive Summary

The following report summarizes research conducted on behalf of the PbS Learning Institute (PbS Li) on the conditions of confinement for juvenile detention facilities, correctional facilities, and assessment centers across the U.S. Using data from facilities that have participated in the Performance-based Standards for Youth Correction and Detention Facilities (PbS) project since 2004, we use statistical analyses to examine how characteristics of facilities and individuals within them relate to a series of safety, order, and security outcome measures, as well as to the likelihood that youth are victimized while incarcerated and to the likelihood of suicide attempts within facilities. Our data come from a variety of sources, each of which is part of the PbS data collection initiative, including: detailed information about every unusual incident that occurred during that month; information from the records of juveniles released during those periods; and surveys of current residents (youth climate surveys), staff (staff climate surveys) and residents released since the last data collection (youth exit interviews).

The current analyses replicate and extend prior work based on an earlier version of PbS data, which included facilities that reported data every six months from 2004 to 2006 (see Snyder and Kupchik 2007). We have extended this work by analyzing data collected every six months (every April and October) from 2004 through 2010. We also take greater advantage of the PbS data by considering the effects of additional facility characteristics, such as staff members' perceptions of training and support.

We perform three stages of analysis. In the first, we perform Ordinary Least Squares (OLS) regression to predict rates of several safety, order and security outcomes in juvenile facilities. These models show that facilities in which large proportions of youth claim to know the facility's rules, and where restraints are used sparingly, tend to have significantly lower rates of several problematic outcomes, such as staff injury, sexual assault, and youth injury. We also find that staff training, staff support, and staffing levels matter in complex, interacting ways. Several of our models show that when staff feel that they are sufficiently trained and/or well-supported by their supervisors, then higher staff-to-youth ratios are associated with fewer safety, order and security problems. But the converse is also true: if staff feel poorly trained or supervised, then more staff per youth is unlikely to produce good outcomes.

In our second stage of models, we perform Hierarchical Linear Models to predict victimization of individual youth, using both characteristics of individual youth and the facilities in which they live. These analyses show that individual-level factors are important in shaping whether individual youth are victimized while incarcerated. In particular, youth who perceive the facility school as good and the staff as helpful, who claim to know the facility rules, and who have not been locked in isolation are less likely than others to be victims while incarcerated.



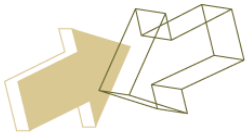


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In our third stage of analyses we use logistic regression to consider the likelihood of facilities having a suicide attempt. We find that female facilities, facilities with larger youth populations, facilities with higher overall youth violence rates, and facilities with high rates of weapon contraband are more likely than others to witness a suicide attempt. In contrast, correctional facilities, facilities with larger racial/ethnic minority youth populations, and in which staff believe they are well trained are less likely to have a suicide attempt.

Though we perform many models and have a lengthy list of individual results, a few important results stand out for their clarity and consistency, and because they resonate with prior research. One in particular is that restraint use is associated with several bad outcomes, indicating that facilities should be careful not to overuse physical, mechanical or other types of restraints. A second is that proper staff support and training are important for placing staff in position to best help youth and maintain safety.





Literature Review

Few recent research studies have focused specifically on factors associated with safety, order, security, suicide, and victimization in juvenile correctional facilities. In our prior report (Snyder and Kupchik 2007) we review this limited literature as it existed through 2006. In it we discuss the facts that much of the research on juvenile correctional facilities is local rather than national, and that these studies often evaluate effectiveness of specific program interventions rather than studying how conditions of confinement or individual characteristics are associated with negative outcomes. Though there are a number of existing studies, perhaps most notably the *Conditions of Confinement* study by Dale Parent et al. (1994; see also Feld 1977), these studies are now somewhat dated. Despite these limitations, there is clear evidence that a variety of factors can shape the likelihood of problems in correctional facilities, including overcrowding, youth relations with staff, high staff turnover, juveniles' levels of violence prior to their residence in study facilities, and over-reliance on confinement and restraints (see Feld 1977; Gallagher and Dobrin 2005, 2006; MacDonald 1999; Miller and Ohlin 1985; Peterson-Badali and Koegl 2002; Poole and Regoli 1983; Trulson 2007).

Since 2006 there have been a few noteworthy contributions to this literature. Recent research has paid additional attention to the bond between correctional staff and juvenile residents. Inderbitzin (2007), for example, analyzes the balancing act of juvenile correctional staff, who must simultaneously counsel youth, maintain security, and act as surrogate parents. In a similar vein, Marsh and Evans (2009) measure the dimensions of staff interactions with youth and find wide variation in the level of support staff give and type of relationships they have with youth. These studies illustrate the importance of strong staff training and support, especially considering the fact that youths' relationships with staff are an important predictor of youth victimization (e.g., Kupchik and Snyder 2009).

In another recent study, Smith and Bowman (2009) help explain why the use of restraints has been found to predict negative outcomes in juvenile correctional facilities. By observing restraint incidents and interviewing both the youth and the staff involved, they are able to qualitatively assess the use of restraints. They find that: restraints are applied in response to minor violations such as defiance of authority rather than to quell immediate threats of violence; juveniles describe being restrained as physically and emotionally painful; that juveniles' fear, anger, and misbehavior only increased following the use of restraints; and that even staff report being emotionally affected by restraining juveniles. Thus they are able to explain a result from prior studies, including our prior analyses of PbS data (Snyder and Kupchik 2007), by showing that restraints impair correctional climates by instilling a sense of anger and unfair use of authority, and also by upsetting staff. Moreover, these results are bolstered by another recent study by Vivian et al. (2007) which shows that "separation" from one's housing unit – measured



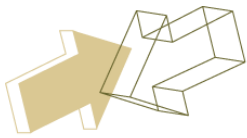


as both an individual's history of separation and the overall rate of separations in one's unit – is a positive predictor of assaults in juvenile correctional facilities.

In an analysis of suicide rates, Hayes (2009) finds that suicide is positively associated with room confinement, and that juvenile detention centers with high suicide rates tend to lack suicide prevention resources.

Recently, reports required by the Prison Rape Elimination Act of 2003 (PREA) have focused attention on the sexual victimization of juveniles in correction and detention facilities. Of the reports' various findings, the most important may be that sexual victimization is more associated with the characteristics of individual juveniles – such as a juvenile's sex, race, length of confinement, sexual orientation, and prior sexual victimization – than it is with basic, facility-level characteristics (Beck et al. 2010).





Methods

The first step of our data analysis process was data assembly because the PbS data come from several collection sources (facility incident forms, administrative reports, youth record forms, youth climate surveys, and staff climate surveys). PbS's shift to a new data collection mechanism in October 2010 added an additional level of complexity to this step because data are stored differently after October 2010 than in previous collections. The end product of this assembly process is a "flat" data file that includes fourteen data collection periods, April and October of each year from 2004 through 2010. As a result, our sample size is more than double that used to produce our most recent (Snyder and Kupchik 2007) full-length report; this larger sample size allows us much more flexibility to use advanced statistical methods and to include more independent variables, as well as providing more statistical "power" (a greater likelihood of finding statistically significant effects).

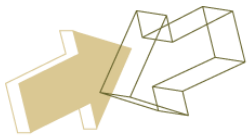
Following data assembly, we cleaned and coded the data in similar fashion as in our previous research. We found several variables that were highly positively skewed, meaning that there were a few facilities with extremely high values on variables, which might distort the analysis. To prevent such distortion of our models by a few influential outlying cases and improve the validity of our results, we capped outlying cases at four standard deviations above the mean; in a normal distribution, 0.003% of cases exceed this cutoff. There were few other problems with the data to respond to, due to the quality of the PbS data collection instruments.

Our analyses mirror our prior report by proceeding in three stages. In the first stage of the analysis we predict facility-level rates of each safety, order, and security outcome measures from the PbS project, using fixed effects ordinary least squares regression models. The fixed effect for these models is the data collection period; this procedure factors out changes over time that are common across facilities and allows us to focus more sharply on how facility characteristics shape these outcomes. In light of concerns about sexual abuse and recently enacted PREA legislation (see Asbridge 2007), we have added an additional safety outcome to our prior analyses: the proportion of youth who report being forced into sexual activity in the past six months.

In the second stage of our analyses we consider individuals rather than facilities as our unit of analysis and estimate the likelihood that individual youth have been victimized, while controlling for both individual and facility characteristics. Such an analysis requires multi-level procedures, or hierarchical linear modeling, to account for the fact that we are studying multiple youth in the same facilities.¹ We measure victimization in

¹ Analyzing multiple cases from the same "cluster" (in this case, facilities) violates the assumption of independence of error terms that Ordinary Least Squares regression requires. Multi-level modeling





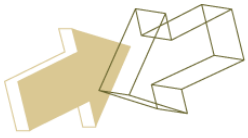
two ways: first using a summary scale that counts the number of victimization incidents reported by each respondent, and then with a series of models that estimate the likelihood that respondents reported specific types of victimization. We use a hierarchical linear Poisson regression model for the summary count model, and logistic hierarchical linear regression models for each individual victimization outcome. Our victimization measures include: fear for one's safety, theft of one's property, being the victim of physical abuse, being the victim of sexual abuse, and being in a fight. The summary count thus varies from 0 to 4 (it does not include fear, only actual incidents), whereas the dependent variable for each logistic regression is coded as 0=did not experience this type of victimization or fear, 1=experienced this type of victimization incident or fear.

The third stage of analysis includes a replication and extension of our earlier work predicting the likelihood of suicide attempts in each facility. The dependent variable for these facility-level analyses is dichotomous: whether a facility had any incidents of suicidal behavior that led to attention from medical professional (including suicides). Here we estimate suicide attempts using four models; these models differ only slightly, with each measuring suicide screening somewhat differently, and no other differences. One includes a variable indicating the percentage of facility residents who are screened for suicide risk within 1 hour of admission and variables for the proportion of youth who receive suicide screening by different types of staff (medical professionals, non-medical staff trained in suicide screening, other staff, or no staff listed). The second includes a variable indicating the proportion of youth who are screened within 1 day of admission, and the same variables for screening staff. The third includes a continuous variable for average time until screening and the variables indicating who does the screening at the facility. This model includes only facilities that screen at least some youth for suicide risk, otherwise they would have no values for average time until suicide risk assessment. The fourth model includes a dummy variable indicating whether all youth are screened for suicide risk at the facility, rather than the personnel type or time until screening variables. These models are estimated using fixed effects logistic regression.

Like in our previous analyses, we use a series of independent variables that are theoretically relevant to disorder in juvenile correctional facilities and that prior research has found to be related to similar outcomes. We list all of these variables in Appendix 1 below. Though this list of independent variables mirrors our prior research, we have expanded it in a few important ways. We now include a greater number of variables on staff composition, training and support. Specifically, our models include the proportion of correctional staff who are female, the proportion who agree or somewhat agree on a survey that they had proper training, and the proportion who report that the "support and guidance they receive" from their supervisor is good or excellent. We also include

strategies account for this clustering and are now common in the literature (see Raudenbush and Bryk 2002).





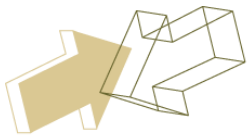
interaction terms of staff-to-youth ratio x staff training and staff-to-youth ratio x staff support in the safety, order and security outcome models.² We added these variables because of their theoretical importance (high staffing ratios mean very different things in facilities where staff training and support vary) and because they proved to be important predictors of outcomes in preliminary models.

In prior reports we included a variable indicating the proportion of youth incarcerated for a person offense, which we imported from the Census of Juveniles in Residential Placement (see Snyder and Kupchik 2007). This measure is important because we take youths' committing offenses to be a proxy for their proclivity for violence. But it is also a very problematic measure. The most recent CJRP data collection was in 2006, thus these data are outdated (a preferable measure would be unique to each data collection period). Additionally, their use meant that we were unable to analyze data from a number of facilities that we could not match to facilities as they were labeled in the CJRP database. In response to these problems, beginning in April 2007 PbS data collection included a variable for the proportion of youth who are incarcerated for a violent offense. Though this variable is superior to using the CJRP measure, it is still problematic because it is only available from April 2007 on, and using it means analyzing only these more recent data rather than the entire dataset. We thus estimated all of the safety, order and security outcomes twice: once using the entire dataset and excluding the variable for violent offenses, and once using only the more recent data periods but including this variable. There were only two outcome models in which the model fit was improved by using the new violent offenses variable and in which this variable was statistically significant. To consider model fit, we used the Bayesian information criterion (BIC statistic), which is robust to differences in sample size and number of independent variables. For these two models – predicting use of mechanical restraints and the use of isolation – we report results that include violent offense (but a reduced sample). For all other outcome models we report the better fitting models using the full sample.

We used Stata SE 11.0 software to estimate all models.

² The interaction terms were not significant and thus not included in the suicide analyses and multi-level models.





Results

PbS Safety, Order and Security Outcomes

In Tables 1a and 1b we list all statistically significant results for our safety outcome measure models. Here we discuss the characteristics of facilities and facility populations that are consistently and statistically significantly related to negative safety outcomes in facilities. Facilities with higher proportions of youth who claim to know the facility rules have lower rates of staff injury, assaults on staff, fear among both youth and staff, and sexual assault. As one would expect, facilities with higher overall youth violence rates also have higher rates of safety problems, including abuse, youth and staff injury, suicidal behavior, and fear among youth and staff. Higher rates of both weapon contraband and “other” contraband are related to higher rates of a variety of safety problems. We also find that facilities that have participated in the PbS program longer tend to have lower rates of youth injury, suicidal behavior without injury, assaults on youth, and fear among youth.

Table 1a. Fixed Effects OLS Regression of Safety Outcome Measures on Facility Characteristics and Aggregate Resident Characteristics (by Facility)

	abuse	youth injury	staff injury	youth injured by youth	youth injured by staff	suicidal behavior w/ injury	suicidal behavior no injury	days over capacity
know rules (p)		0.220*	-0.084**					
housing classification (p)	-0.021*							
screened suicide risk (p)	-0.010*							
public facility		0.204**					-0.071**	
female-only facility			0.049**	-0.037**		0.071**	0.108**	-0.059**
correctional facility	0.010**	0.100**					-0.032**	-0.074**
youth population		-0.001*	-0.000**		-0.000**		-0.000*	
racial minority staff (p)			-0.065**		-0.031**			0.075**
racial minority youth (p)	0.018*		0.053**				-0.080**	0.061*
staff-youth ratio					0.111*	0.113**	0.323**	-0.230*
youth violence rate	0.029**	0.385**	0.046**	0.102**	0.060**	0.020**	0.048**	
drug contraband								-0.415*
weapon contraband	0.134*		0.487**					
other contraband		0.430**		0.040**		0.049**	0.058*	-0.087**
restraints		0.002**	0.000**		0.000**		0.000**	
isolation	-0.000*							
segregation	-0.000*				-0.000*		0.000*	
confinement			-0.000**	0.000*	-0.000**	0.000*	0.000*	
days over capacity (p)		-0.196**						
age of facility		0.001**	0.000**		-0.000*		-0.000*	
participation in PbS	0.001*	-0.007**					-0.002*	
female staff (p)		0.627**		0.064**				0.111**
staff proper trained (p)					0.210**			-0.319*
staff trained x staff-yth ratio					-0.152*			
staff supported (p)					-0.100*			
staff supported x staff-yth ratio	-0.054*						-0.193**	
Constant	-0.019	-0.872	0.113	-0.072	-0.057	-0.037	0.036	0.381
Observations	1615	1615	1615	1615	1615	1615	1615	1615
R-squared	0.12	0.24	0.13	0.21	0.17	0.14	0.18	0.12
*p<.05; **p<.01								
(p) means proportion of youth or staff								



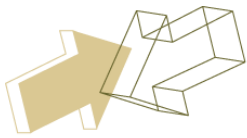
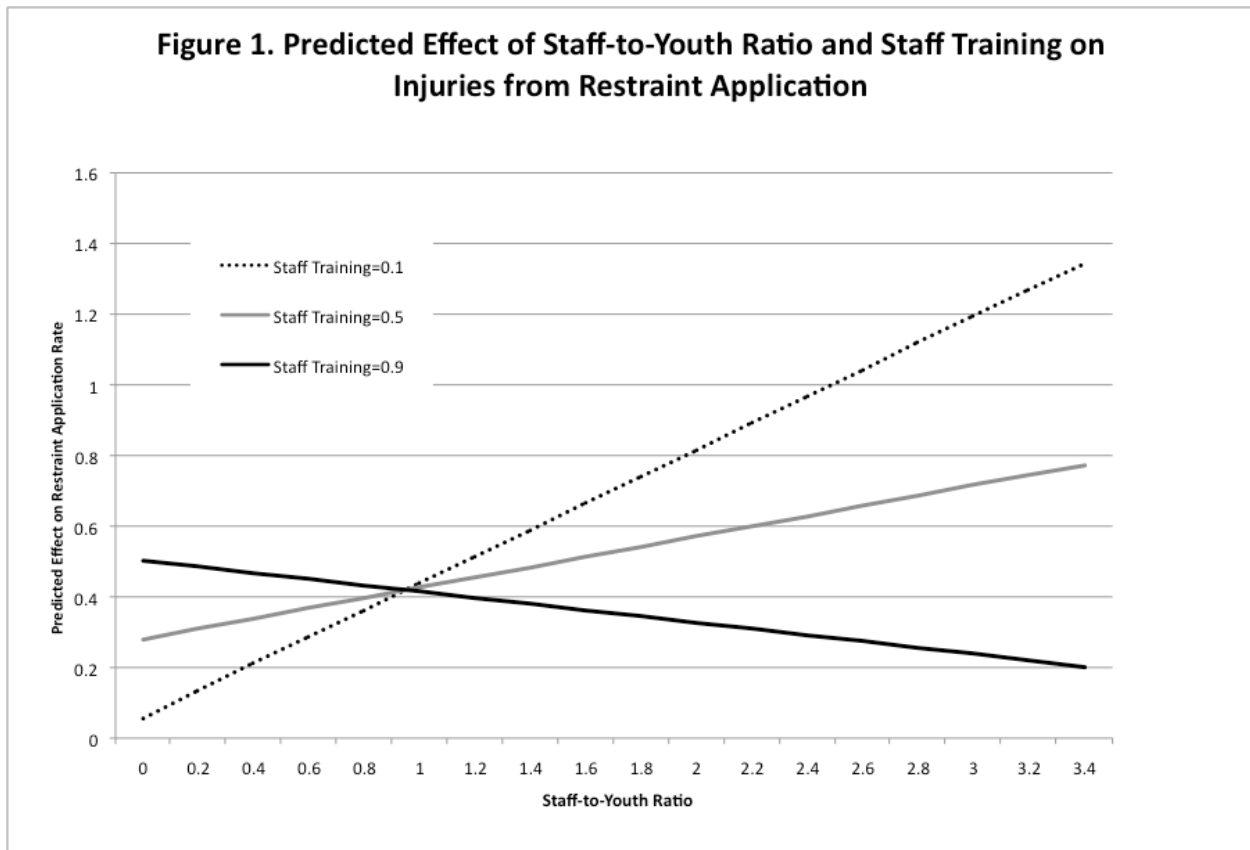


Table 1b. Fixed Effects OLS Regression of Safety Outcome Measures on Facility Characteristics and Aggregate Resident Characteristics (by Facility)

	staff-youth ratio	injury from restraint	assault on youth	assault on staff	avg fear among youth	avg fear among staff	forced sex
know rules (p)				-0.052*	-0.327**	-0.091**	-0.088**
housing classification (p)	-0.170*						
screened suicide risk (p)	-0.164**		0.032*		-0.033**		
public facility				-0.046**	0.045**		
female-only facility	0.099*		-0.095**	0.071**	0.081**		
correctional facility	0.062*			0.016*	0.021**		0.016*
youth population	-0.002**		0.000**	-0.000**			
racial minority staff (p)	0.135**	-0.049**	0.066**	-0.033*			
racial minority youth (p)	0.118*		-0.063*	0.038*	-0.042*	0.062**	
staff-youth ratio		0.437**		0.122*			
youth violence rate	0.204**	0.100**	0.591**	0.178**	0.038**	0.048**	
drug contraband		-0.302*					-0.203*
weapon contraband				0.379**		0.337*	
other contraband		0.073**				-0.049**	
restraints		0.000**			0.000**		0.000*
isolation	-0.001*			0.000*	0.000**		
segregation							
confinement		-0.000**					
days over capacity (p)	-0.226**						
age of facility	0.001*						
participation in PbS			-0.002*		-0.002**		
female staff (p)			0.105**	-0.084**			
staff proper trained (p)		0.558**				-0.400**	
staff trained x staff-yth ratio		-0.584**	0.234*				-0.231**
staff supported (p)		-0.206**				-0.317**	-0.101*
staff supported x staff-yth ratio		0.186**			-0.100*		0.111*
Constant	1.160	-0.300	0.144	0.007	0.454	0.753	0.085
Observations	1615	1615	1615	1615	1615	1615	282
R-squared	0.21	0.17	0.69	0.41	0.3	0.41	0.26
*p<.05; **p<.01							
(p) means proportion of youth or staff							

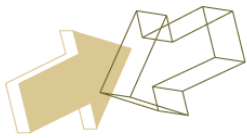
But perhaps the most consistent and significant result in the safety models is the positive relationship between restraints and safety outcomes; facilities with higher numbers of restraint incidents tend to have higher rates of youth injury, staff injury, youth injured by staff, suicidal behavior without injury, injury during punishment, fear among youth, and sexual assault. It is important to remember that we see this consistent result even after controlling for other punishment practices (isolation, confinement and segregation) and the overall violence rate in the facility. Moreover, this result corresponds to prior research showing that restraint use usually occurs in response to minor behavioral problems rather than to threats of harm to staff or youth, and that the use of restraints has an independent negative effect on facility climate (Smith and Bowman 2009).





The safety outcome model results show that the role of staff-to-youth ratio is not as clear as one might expect. In several models, the interaction of staffing ratio and both staff training and staff support are significant. This suggests that it is a mistake to consider staffing ratio on its own – one must consider it in conjunction with the training and support staff receive. Thus, high levels of correctional staff are associated with negative outcomes if the staff are poorly trained and poorly supported; on the other hand, higher staffing levels are associated with lower rates of some safety problems when staff believe their training and support are sufficient. Perhaps the clearest illustration of this is with the rate of youth injured during restraint application; we illustrate the effect of staffing ratio and staff training on youth this outcome, while controlling for all other independent variables, in Figure 1. As this figure shows, when 10% of staff believe their training is sufficient, then increasing staff levels are associated with higher injury rates; this effect decreases if when 50% of staff believe their training is sufficient, and when 90% of staff believe their training is sufficient the line slopes downward, indicating that higher staffing levels might decrease injury rates. The direction of this relationship is not always in this predicted direction, such as with the interaction of staff support and staffing ratio in the same outcome model. Here it seems that in facilities where many staff feel supported, increasing staffing levels are associated with worse outcomes. Yet, results that point toward such a conclusion are





outweighed by the type of result we show in Figure 1. Thus the results are still murky and require further analysis in future years as we collect more data. For now, one result is clear: it is a mistake to consider staffing level without also taking into consider how these staff are trained and supervised.

Though the results for forced sexual assault are included in the above discussion, given the focus on this outcome because of PREA we wish to focus on this model in particular. It is shown on Table 1b as the final safety outcome measure. Here we see that correctional facilities and facilities that use restraints relatively frequently tend to have high rates of sexual assault, where as facilities in which large proportions of youth claim to know facility rules and that have high rates of drug contraband tend to have relatively low rates of sexual assault. We also see that staff training and staff support are important, but in a complex way that includes their interaction with staffing levels (see above). Aside from the interactions of training by staffing levels and support by staffing levels, we do see an independent effect of staff support; facilities in which a large proportion of staff feel supported by their supervisors tend to have low rates of sexual assault.

Table 2. Fixed Effects OLS Regression of Order Outcomes on Facility Characteristics and Aggregate Resident Characteristics (by Facility)

	miscond. injury	sanction ratio	physical restraint	mech. restraint	other restraint	chair restraint	isolation	mean punishment time	prop time under 4 hours	prop time under 8 hrs	avg idle hours
know rules (p)			-0.324**	-0.316*			-2.579**	-22.541**			
housing classification (p)							2.182**				-0.563*
screened suicide risk (p)			-0.178**		-0.013*		-1.817**		-0.130**	-0.103**	-0.306*
public facility		-0.111**			-0.051**			15.982**		0.118*	
female-only facility	0.846**	0.115**	0.227**	0.251**	0.027**						-0.426**
correctional facility	-0.438**		-0.134**	-0.098*			-1.574**	14.342**	-0.151**	-0.181**	
youth population	-0.008**	-0.000*	-0.001*		0.000*		-0.005*	0.041**			
racial minority staff (p)		0.152**	-0.227**	-0.304**			-1.022*	14.149**		-0.091*	
racial minority youth (p)	-0.588**		0.286**				-1.646**		-0.182**	-0.152**	
staff-youth ratio			0.742**	-0.879*			-4.281*				
youth violence rate	0.670**	0.109**	0.862**	0.255**	0.021**						-0.232*
drug contraband		-0.600*	-1.133*								
weapon contraband							22.360**	1.327**	1.463**		
other contraband	1.095**			0.223*			3.149**	0.182**	0.148**	0.449*	
restraints	0.003*						0.014**				
isolation	0.020**			0.002**	-0.000**	0.000**					0.004**
segregation	0.019**			0.008**	-0.000*						
confinement	0.014**		0.001**		-0.000*						0.004**
days over capacity (p)								0.127**	0.100*		
age of facility			-0.001**	0.001*	0.000*	0.000**				-0.001**	
participation in PbS	-0.016*	0.005**			0.001**				0.010**	0.011**	-0.069**
female staff (p)				-0.431**		-0.013*		17.515**			
staff proper trained (p)		0.429*		-2.113**							
staff trained x staff-yth ratio				1.598**							
staff supported (p)		-0.268*		0.595*					-0.331*	-0.466**	
staff supported x staff-yth ratio			-0.657**	-0.697*	-0.062*					0.330*	
violentcharge				0.262**			-1.744**				
Constant	0.380	0.002	0.099	2.001	0.013	0.000	6.938	8.835	0.544*	0.778	4.595
R-squared	0.550	0.090	0.450	0.310	0.060	0.050	0.190	0.100	0.110	0.120	0.170

* p<.05; ** p<.01

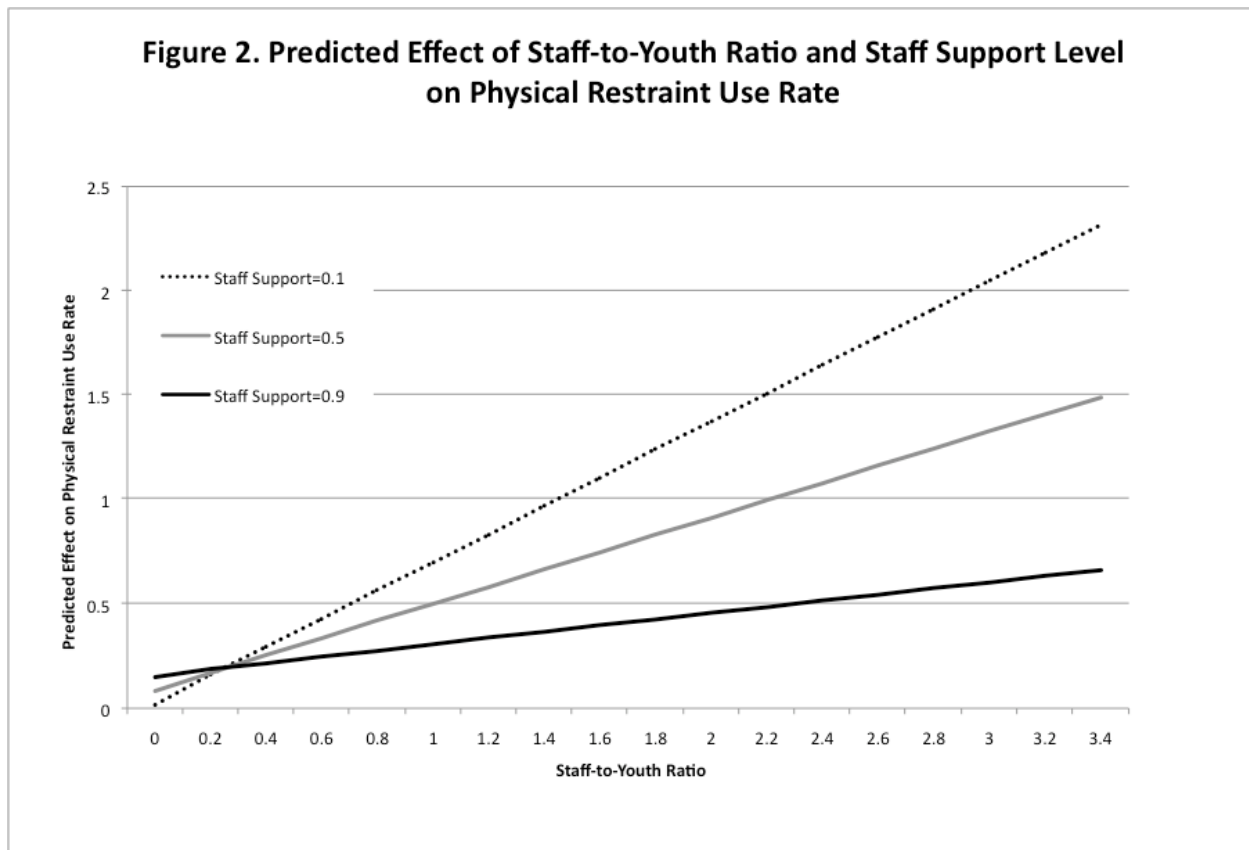
(p) means proportion of youth or staff

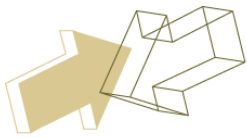




Another independent variable in which we are particularly interested is the proportion of youth who are racial or ethnic minorities. Our results for youth race vary considerably across outcomes. Facilities with high proportions of minority youth tend to have higher rates of abuse, staff injury, and assaults on staff, as well as higher average numbers of days over facility capacity and higher staff-to-youth ratios. But they also have lower rates of suicidal behavior without injury and assaults on youth. Interestingly, facilities with high proportions of minority youth tend to have relatively high rates of fear among staff, but low rates of fear among youth.

The results for our outcome models also show some significant and consistent results. As shown in Table 2, the proportion of youth who claim to know the facility rules is negatively related to several order outcomes, as is the proportion of youth screened for suicide risk within an hour of admission. Here we see that female-only facilities have higher rates of some of our order outcomes, including each type of restraint use, and that correctional facilities have lower rates of most order outcomes. As expected, the overall youth violence rate is positively related to order outcomes, as is “other” contraband (see Snyder and Kupchik 2007).





The order outcome models again show that staffing ratio should not be considered in isolation. We find that the interaction of staff ratio by staff support is significant in four models, and negative in three of those. We graph this relationship in Figure 2 for the predicted effect on use of physical restraint. As this graph shows, overall, facilities with higher staff-to-youth ratios tend to use physical restraints more often, but this is much less so when staff feel more supported.

With regard to the proportion of youth who are racial/ethnic minorities, we again find inconsistent results regarding order outcomes. The proportion of minority youth is positively related to use of physical restraints, but negatively related to injury stemming from misconduct, use of isolation, and the proportion of punishment times that are less than 4 or 8 hours. Thus although there is no clear evidence that the racial composition of facility residents is related to negative youth behaviors, we do see that facilities with more minority youth tend to use harsher punishments and to keep youth in punishment longer than in other facilities. This result, along with the results from our safety outcome models showing relatively high rates of fear among staff and assault of staff in facilities with large minority youth populations, suggest that staff/resident relationships are an important and relatively unexplored area of concern in these facilities.

Table 3. Fixed Effects OLS Regression of Security Outcome Measures on Facility Characteristics and Aggregate Resident Characteristics (by Facility)

	escapes	attempted escapes	weapon contraband	drug contraband	other contraband	lost keys	lost tools
know rules (p)							
housing classification (p)			-0.009*		-0.098**		
screened suicide risk (p)							
public facility			-0.007*		0.092**		
female-only facility		0.011**			-0.054**		0.002*
correctional facility	0.004**		0.003*		0.032**	0.001*	
youth population		-0.000**					
racial minority staff (p)				0.009*	0.043*		
racial minority youth (p)							
staff-youth ratio							
youth violence rate		0.006**	0.006**				
drug contraband							
weapon contraband		0.112**					
other contraband						0.003**	0.006**
restraints							
isolation			0.000**				
segregation					0.001**		
confinement			0.000**		0.000**		
days over capacity (p)				-0.011**	-0.073**		
age of facility							
participation in PbS					-0.003**		
female staff (p)					0.085*		
staff proper trained (p)							
staff trained x staff-yth ratio							
staff supported (p)							
staff supported x staff-yth ratio						0.007*	
Constant	0.005	-0.009	0.025	0.006	0.184	0.000	0.002
N	1615	1615	1615	1615	1615	1615	1615
R-squared	0.020	0.080	0.060	0.050	0.140	0.030	0.040
*p<.05; **p<.01							
(p) means proportion of youth or staff							



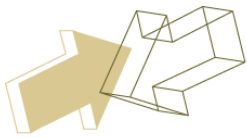


As shown in Table 3, there are very few statistically significant predictors of security outcomes. The most consistent result is that correctional facilities tend to have higher rates of escapes, weapon contraband, other contraband, and lost keys than detention facilities or assessment centers. No other predictor is statistically significant and in the same predictive direction in more than two of the security models, and, as one would expect, the proportion of variance in these dependent variables that is explained by the independent variables (shown as the R-squared value for each model) is consistently low. These results clearly show that security maintenance is due to factors not measured here, presumably to factors such as the facility oversight and effectiveness of facility policies.

Table 4. Hierarchical Linear Model Regressing Victimization Scale on Facility-Level and Individual-Level Variables

Facility Level Variables		
know rules (p)	-0.252	**
housing classification (p)		
screened suicide risk (p)	-0.130	**
public facility		
female-only facility	-0.110	*
correctional facility	0.285	**
youth population	0.001	**
racial minority staff (p)	0.114	**
racial minority youth (p)		
staff-youth ratio		
youth violence rate	0.113	**
drug contraband		
weapon contraband		
other contraband		
restraints		
isolation	0.001	**
segregation		
confinement		
days over capacity (p)		
age of facility		
participation in PbS		
female staff (p)	0.242	**
staff proper trained (p)		
staff supported (p)		
Individual Level Variables		
understands rules	-0.235	**
good school	-0.068	**
locked up	0.492	**
staff quality scale	-0.216	**
intercept	0.894	**
Total R-Squared	0.178	
N	38732	
*p<.05; **p<.01		
(p) means proportion of youth or staff		





Hierarchical Linear Models Predicting Victimization

The results of our second stage of analyses, where we compute hierarchical linear models predicting victimization experiences of individual residents, mirror results from prior analyses (see Snyder and Kupchik 2007; Kupchik and Snyder 2009). Though a number of facility-level characteristics are related to our victimization scale, the individual-level variables are the most consistent and robust predictors of victimization. These results for our victimization scale are shown in Table 4.

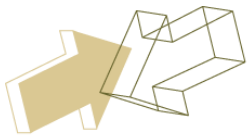
At the facility level, the proportions of youth who know the facility rules and who are screened for suicide risk within one hour of admission are negatively associated with victimization experiences, and youth in female-only facilities have relatively low scores on the victimization scale. Youth in facilities with larger youth populations, higher proportions of staff who are racial/ethnic minorities, higher rates of overall youth violence, who use isolation more, who have higher proportions of female staff, and correctional facilities tend to have more victimization experiences than others.

Each of our variables measured at the individual level is a statistically significant predictor of individuals' exposure to victimization. Youth who claim to understand the facility rules, who rate the school as good and who have high opinions of facility staff experience less victimization, while those who have been locked in isolation at the facility experience more victimization.

These results hold up in most of the logistic HLM models predicting the likelihood of each discrete victimization outcome and fear, as seen in Table 5. The coefficients shown in this table are odds ratios, thus numbers smaller than 1.0 indicate reduced odds of that type of victimization or fear, whereas numbers greater than 1.0 indicate increased odds of each outcome. At the facility level, the proportion of youth who know facility rules, the proportion who are screened within an hour for suicide risk, and the proportion of staff who feel adequately supported by their supervisors are negatively related to the odds that an individual youth is victimized or afraid. Youth in correctional facilities, larger facilities, facilities with high overall violence rates and high proportions of female staff, and where isolation is used frequently also tend to have higher odds of several types of victimization.

Yet again, the individual level variables are more robust and consistent predictors of individuals' odds of victimization. Each individual level variable is significant and in the predicted direction: youth who understand facility rules and appreciate the school and facility staff have lower odds of victimization, while a history of being locked up at the facility is related to increased odds of victimization.



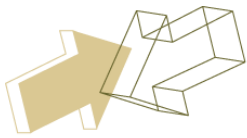


In sum, these models confirm our prior analyses and add to our confidence in these results (see Snyder and Kupchik 2007; Kupchik and Snyder 2009), since we now have a larger dataset and improved measures.

Table 5. Logistic Hierarchical Linear Models Regressing Victimization on Facility and Individual Characteristics, Exp(B) Reported

Facility Level Variables	Fear	Theft	Physical Abuse	Sexual Abuse	Fights
know rules (p)	0.390 **	0.628 **	0.455 **	0.436 **	
housing classification (p)	0.707 **			0.594 *	
screened suicide risk (p)	0.850 **	0.824 **	0.729 **	0.697 **	0.742 **
public facility					
female-only facility	1.410 **				0.509 **
correctional facility		1.720 **	1.518 **	1.331 *	2.564 **
youth population		1.002 **	1.001 *		1.002 **
racial minority staff (p)		1.739 **			1.409 **
racial minority youth (p)			0.568 **		1.813 **
staff-youth ratio			0.819 **		
youth violence rate	1.152 **	1.186 **	1.193 **		1.439 **
drug contraband				7.877 *	
weapon contraband					
other contraband					
restraints					
isolation	1.002 **	1.002 **	1.001 *		
segregation					
confinement					
days over capacity (p)				1.504 *	
age of facility					
participation in PbS				1.021 *	
female staff (p)	1.563 **		1.561 **		2.060 **
staff proper trained (p)		1.725 *			
staff supported (p)	0.668 **	0.734 *	0.772 *		
Individual Level Variables					
understands rules	0.549 **	0.615 **	0.699 **	0.462 **	0.869 **
good school	0.878 **	0.854 **	0.908 **	0.696 **	0.906 **
locked up	1.228 **	1.574 **	1.596 **	1.715 **	5.988 **
staff quality scale	0.568 **	0.528 **	0.609 **	0.878 **	0.749 **
intercept	0.356	-1.422	0.151	-2.329	-2.775
N	40007	40386	40333	40289	40182
-2 Log-Likelihood	-18447	-16212	-21455	-6138	-20128
*p<.05; **p<.01					
(p) means proportion of youth or staff					





Suicide Attempts

We report the results of our third stage of analyses, our models predicting the likelihood of a facility having any suicide attempts, in Table 6. These models differ only with regard to how suicide screening is measured, and in no other way, thus they are very consistent. As with the logistic HLM models, we report odds ratios in Table 6, which means that values below 1.0 show decreased odds of a suicide attempts and values above 1.0 indicate increased odds of a suicide attempt with high levels of each independent variable.

Table 6. Fixed Effects Logistic Regression of Suicide Attempt on Facility Characteristics and Aggregate Residents' Characteristics (by Facility), Exp(B) Reported

	Model 1	Model 2	Model 3	Model 4
know rules (p)				
housing classification (p)				
public facility				
female-only facility	1.868 *			1.761
correctional facility	0.658 *		0.623 *	0.656 *
youth population	1.005 **	1.005 **	1.005 **	1.006 **
racial minority staff (p)		2.100 *		
racial minority youth (p)	0.286 **	0.296 **	0.327 *	0.350 *
staff-youth ratio				
youth violence rate	1.866 **	1.885 **	1.844 **	1.763 **
drug contraband				
weapon contraband	4919.686 **	3255.171 **	11719.390 **	1543.797 **
other contraband				
restraints				1.004 *
isolation				
segregation				
confinement				
days over capacity (p)				
age of facility				
participation in PbS				
female staff (p)				
staff proper trained (p)	0.124 *	0.111 *		
staff supported (p)				
suicide screen 1 hour (p)				
suicide screen 1 day (p)				
screened by nonmedical staff (p)				
screened by other staff (p)				
no staff listed as screener (p)				
mean time to screening				
all youth screened				
Observations	1461	1418	1161	1540
*p<.05; **p<.01				
(p) means proportion of youth or staff				





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We find that female facilities, facilities with larger youth populations, facilities with higher overall youth violence rates, and facilities with high rates of weapon contraband are more likely than others to have a suicide attempt. In contrast, correctional facilities, facilities with larger racial/ethnic minority youth populations, and in which staff believe they are well trained tend to have a lower likelihood of a suicide attempt.³ To our surprise, we do not find that suicide risk screening matters in any of the models; neither the time until screening, type of personnel who completes the screening, or whether screening is universal shape the likelihood of a suicide attempt.

³ The proportion of staff who are racial or ethnic minorities and restraint use are both positive and significant in only one of the four models. Given that these results are not repeated across such similar models leads us to have little confidence in these particular results.





Conclusion

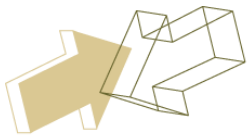
The purpose of this research is to use the massive dataset collected through the PbS project to better understand trends among facility outcomes, and what facility and individual characteristics are associated with those trends. Thus the statistical models tell us whether facilities with certain characteristics tend to have more or fewer problems than other facilities, on average.

One important limitation of these models is that we cannot say with certainty that one facility action causes a particular negative outcome. For example, though it seems likely that the frequent use of restraints causes increases among youth injuries, we cannot definitively rule out the reverse causal order of events: that facilities with high rates of youth injuries are forced to use restraints often. However, this latter interpretation is very unlikely for a number of reasons. One is that the results that we discuss above are exactly what one would expect based on prior research; the fact that our analyses, which includes a large national database, confirm prior findings should give us greater confidence in the findings and our interpretation of them. A second reason is that we also include a number of variables in an attempt to control for alternate explanations. Variables such as the overall youth violence rate and other types of facility punishments (isolation, confinement, and segregation) allow us to isolate the specific effect of restraint use (or other variables) on each outcome. In other words, including these other variables means it is very unlikely that our results are the by-product of facility violence or disorder in general.

Two other potential limitations to our analyses merit discussion here. One is that our sample is not the product of random sampling, but instead the result of facilities' or states' decision to participate in the PbS program. If participating facilities differ notably from other facilities, then our results may not be generalizable to all juvenile facilities. It is unlikely that this is a large problem, given that so many facilities and states participate, and that many of our results resemble those from prior research, including results based on data from the Census of Juveniles in Residential Placement (see Snyder and Kupchik 2007). A second potential limitation is that our analyses include little information on how facilities are run. Differences in how facility administrators implement policies and supervise staff might mean that predictors of outcomes vary substantially among facilities. Since our analyses consider average effects across facilities, such distinctions would not be visible here.

Despite these limitations, the above analyses use a large, national database that spans several years, and, as a result, produces a robust set of results. Our first set of analyses, where we use OLS regression to predict safety, order, and security outcomes, suggests that facilities in which youth know the facility rules and facilities that use restraints sparingly have lower than average rates of several problems, including the rate of sexual assault, a focus of increasing attention among facilities and by federal





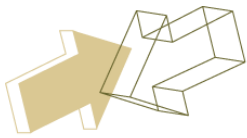
law. We also find that staff training and support condition the effect of staff-to-youth ratio on some outcomes, whereby high staffing ratios help improve facility safety, order, and security when staff feel well-supported and well-trained.

Our second set of analyses, the HLM models predicting individuals' victimization experiences, mirrors closely our earlier analyses using a much smaller dataset (Snyder and Kupchik 2007; Kupchik and Snyder 2009). Again we find that individuals' experiences – whether they know the facility rules, perceive the staff as helpful, perceive the school as good, and have been locked up – are the most robust predictors of victimization. These results illustrate the importance of reaching out to youth and ensuring that they understand facility rules, make good use of the facility's school, and develop positive relationships with staff.

Our third set of analyses, where we predict the likelihood of a suicide attempt, highlight the importance of staff training in protecting youth. We find that facilities with high proportions of staff who believe they are well trained also tend to have lower than average odds of a juvenile attempting suicide.

In sum, our analyses confirm and extend prior analyses, leading us to have increased confidence in a now growing body of evidence that facility practices can shape order within juvenile facilities. Among other results, we find that infrequent use of restraints, sufficient staff training and support, and establishment of effective relations with youth are features of safe and secure facilities.





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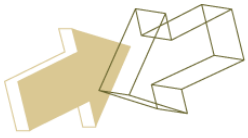
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Appendix 1. List of Variables

Dependent Variables:

1. Safety Outcomes

- Abuse or neglect cases per 100 person days of confinement
- Youth injuries per 100 person days of confinement
- Staff injuries per 100 staff days of employment
- Youth injured by other youth per 100 person days of confinement
- Youth injured by staff per 100 person days of confinement
- Suicidal behavior with injury per 100 person days of confinement
- Suicidal behavior without injury per 100 person days of confinement
- Youth injuries by application of restraint per 100 person days of confinement
- Assaults on youth per 100 person days of confinement
- Assaults on staff per 100 person days of confinement
- Proportion of youth who report fear for their safety
- Proportion of staff who report fear for their safety
- Proportion of youth who are forced into sexual activity

2. Order Outcomes

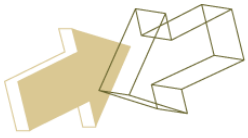
- Incidents of youth misconduct leading to restraint, isolation, or injury per 100 person days of confinement
- Staff involvement in sanctions per 100 staff days of employment
- Use of physical restraints per 100 person days of confinement
- Use of mechanical restraints per 100 person days of confinement
- Use of chair restraints per 100 person days of confinement
- Use of other restraints per 100 person days of confinement
- Use of isolation, room confinement, or segregation per 100 person days of confinement
- Average time spent in isolation, confinement, or segregation
- Proportion of isolation, confinement, or segregation incidents ended within 4 hours
- Proportion of isolation, confinement, or segregation incidents ended within 8 hours
- Average number of idle hours

3. Security Outcomes

- Escapes per 100 person days of confinement
- Attempted escapes per 100 person days of confinement
- Other (non weapons, non drug or alcohol) contraband per 100 person days of confinement
- Lost keys incidents per 100 person days of confinement

4. Victimization Outcomes – Individual Level





Whether each individual youth reports that he/she:

- Fears for his/her safety
- Had property stolen
- Was physically abused
- Was sexually abused
- Was in a fight

Independent Variables:

- Proportion of youth who claim to know the facility rules
- Proportion of youth who are assigned housing based on a classification system
- Proportion of youth who are screened for suicide risk within one hour of presentation for admission
- Public facilities (contrast = private)
- Female only facilities (contrast = male only and coed)
- Correctional facilities (contrast = detention facilities and assessment centers)
- Size of youth population
- Proportion of staff who are racial/ethnic minorities
- Proportion of youth who are racial/ethnic minorities
- Ratio of staff-to-youth
- Overall youth violence incidents per 100 person days of confinement (including fights, sexual assaults, assaults on staff, and assaults on youth)
- Alcohol or drug contraband incidents per 100 person days of confinement
- Weapons contraband incidents per 100 person days of confinement
- Other (non weapons, non drug or alcohol) contraband per 100 person days of confinement
- Total number of restraint incidents
- Total number of isolation incidents
- Total number of segregation incidents
- Total number of confinement incidents
- Proportion of days over residential capacity
- Age of facility
- Length of participation in PbS data collection
- Proportion of staff who are female
- Proportion of staff who agree or somewhat agree that they had proper training
- Proportion of staff who report that the “support and guidance they receive” from their supervisor is good or excellent
- Interaction: staff-to-youth ratio x staff training
- Interaction: staff-to-youth ratio x staff support
- Proportion of youth who are incarcerated for a violent offense





Additional Variables Included in HLM Victimization Analysis:

Whether each respondent reports that he/she:

Understands facility rules

Thinks the school is good

Has been locked up

A scale for average of items measuring perceived staff quality (agreement to whether staff show respect to juveniles, staff are good models, staff seem to genuinely care about youth, staff use force only when they really need to, staff make more positive than negative comments, and staff are fair about discipline)

Additional Variables Included in Suicide Analysis:

Proportion of youth screened by various staff (training – contrast=medical staff) :

Non-medical trained staff (social worker, “trained staff”)

Other staff (listed as “other” and “other state qualified” staff)

No staff performed screening

Hours from admission to suicide screening

Time until suicide screening, categorical variables (contrast: not screened at facility, or screened more than 24 after admission) :

Proportion screened within one hour of admission

Proportion screened within 24 hours of admission

