California Department of Developmental Services
Risk Management and Mitigation:
Year in Review
FY05/06

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Acumen, LLC
500 Airport Blvd., Suite 365
Burlingame, CA 94010

Introduction and Background

Over 200,000 individuals with developmental disabilities receive services through California's network of regional centers, funded by the California Department of Developmental Services (DDS). In fiscal year 2001-2002, DDS initiated a comprehensive statewide risk prevention, mitigation and management system as one cornerstone of quality services for consumers with developmental disabilities. As part of this system, and as required by Title 17 of the California Code of Regulations, regional centers and DDS track adverse events that occur to consumers with developmental disabilities. Title 17 mandates that vendors and long-term health care facilities report these occurrences, known as special incidents, to the regional centers and that regional centers report to DDS. Vendors and long-term health care facilities are required to report suspected abuse, suspected neglect, injury requiring medical treatment, unplanned/unscheduled hospitalizations, and instances where a consumer is the subject of a missing persons report if they occur when a consumer is receiving vendored services; in addition, *any occurrence* of consumer mortality or a consumer being the victim of a crime must be reported regardless of when or where it occurred.

This year-end review for fiscal year 2005-2006 describes the number and rate of reported special incidents experienced by consumers with developmental disabilities. More importantly, we present findings drawn from statistical analysis of the risks of special incidents for consumers. This framework accounts for the fact that different consumers are more or less likely to experience special incidents – for example, older consumers are more likely to experience health problems and therefore are more likely to have an unplanned hospitalization. Therefore a rise in unplanned hospitalization could be accounted for by a more elderly mix of consumers, rather than any problem within the system. Using statistical risk analysis, we can examine not only the overall trend in special incidents, but also the trend accounting for changes over time in the characteristics of consumers served, called case-mix adjustment. Knowing what consumer characteristics are associated with greater risk, as well as assessing trends that are not driven merely by a changing consumer population, allows DDS and the regional centers to tailor their risk management activities to the specific types of risks faced by consumers.

Overall Incident Rates have Fallen over the Past Year

The average number of reported incidents per consumer decreased slightly from FY04/05 to FY05/06, although the total number of incidents increased. This occurred because the total number of consumers served by the twenty-one regional centers increased by more than 4 percent, while the number of incidents increased only 2.2 percent. (Table 1)

Table 1: Reported Special Incidents for All DDS Consumers FY 04/05 and FY05/06

	FY04/05	FY05/06
Total Number of Consumers	221,030	230,504
Total Number of Incidents	15,984	16,242
Incidents per Consumer	.072	.070

The decline in the number of special incidents per consumer is driven by a decline in the rate of non-mortality special incidents. The mortality rate across FY05/06 was up slightly from the previous year, with 0.07 percent of consumers dying in an average month, compared to 0.06 percent in the previous year. (Table 2) Rates of non-mortality special incidents fell, particularly injury, suspected abuse and suspected neglect.

Table 2: Average Number and Percent of Consumers per Month Experiencing Special Incidents by Type: FY 04/05 and FY05/06

Incident Type	FY04/05		FY05/06	
Mortality	123	.06%	136	.07%
Any Non-Mortality Special Incident	1,082	.55%	1,082	.53%
Unplanned Hospitalization	444	.23%	464	.23%
Injury	309	.16%	307	.15%
Suspected Abuse	164	.08%	152	.08%
Suspected Neglect	67	.03%	57	.03%
Missing Person	86	.04%	87	.04%
Victim of Crime	66	.03%	65	.03%

Incident Rates Would Have Been Lower If Consumer Characteristics Had Been Stable

Changes in the characteristics of consumers from FY04/05 to FY05/06 partially explain the increase in mortality rates. If consumer characteristics had been the same in FY05/06 as the previous year, the mortality rate would have been only 2.8 percent higher than the previous year, instead of the 7.2 increase seen in the unadjusted rates. (Table 3) In fact, adjusting for case-mix, the rate of non-mortality special incidents fell by more than seen in the unadjusted numbers.[1] Comparisons to FY03/04 show an even larger role for case-mix. The FY05/06 mortality rate was slightly higher than the FY03/04 rate, but all of the increase between the average monthly rate for 03/04 and 05/06 can be explained by changes in the consumer population, so there was an actual decline in case-mix adjusted mortality rates between 03/04 and 05/06. In contrast, the case-mix adjusted non-mortality special incident rate is about the same as two years ago, although lower than last year. As with mortality, case mix explains much of the apparent increase in unadjusted incident rates.

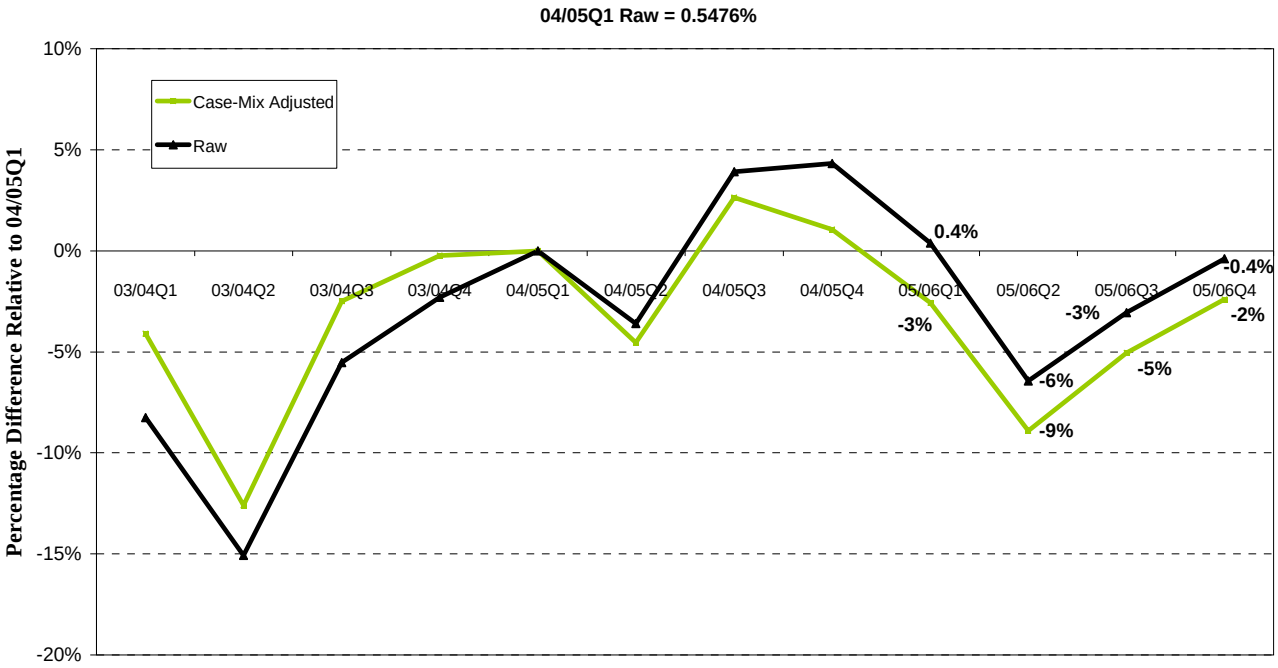
Table 3: Year-to-Year Percentage Changes in Average Monthly Rate of Special Incidents, FY05/06 Compared to FY03/04 and FY04/05

	Change From FY03/04				Change From FY04/05			
	All Non-Mortality Incidents		Mortality Incidents		All Non-Mortality Incidents		Mortality Incidents	
Raw Rate	+5.9%	⇧	+1.8%	⇧	-3.5%	⇩	+7.2%	⇧
Case-Mix Adjusted Rate	+0.1%	⇔	-6.3%	⇩	-4.5%	⇩	+2.8%	⇧

[1] An example illustrates the utility of using case-mix adjusted rates for risk management activities. Let us say that consumers over the age of 60 are more likely to experience unplanned hospitalizations. Let us also say that in the first quarter of FY05/06 only 10% of DDS consumers were over the age of 60, but in fourth quarter this percentage had increased to 20%. We would not be surprised then to learn that there were many more unplanned hospitalization incidents in the last quarter of the fiscal year than in the first quarter. In this example, the increase in unplanned hospitalization incidents had nothing to do with risk management practices – it was caused by the aging DDS population. In order to correct for this problem in raw rates of special incidents, we can use statistical techniques to control for certain consumer characteristics over time and report what the rate of incidents *would have been* if consumer characteristics (such as age, gender, disability type, level of functioning) had stayed the same. These case-mix adjusted rates can give DDS and the regional centers more helpful information as they work to improve risk management practices over time.

One strategy to understand the trends in incident rates is to compare each quarter's rate to a baseline period. Figure 1 below uses the first quarter of FY04/05 as the baseline, showing the rate in other quarters relative to this rate (the zero line represents the same rate as FY04/05Q1, +5% is a 5 percent increase from the rate that quarter, -5% is a 5 percent decrease from the rate that quarter). The first quarter of FY04/05 was chosen as baseline to allow tracking historical experience, reflecting stable incident reporting practices without being too distant from current experience. During FY05/06, case-mix adjusted rates of non-mortality special incidents were below their FY04/05 levels in every quarter (Figure 1). However, they were consistently near the quarterly rates for FY03/04.

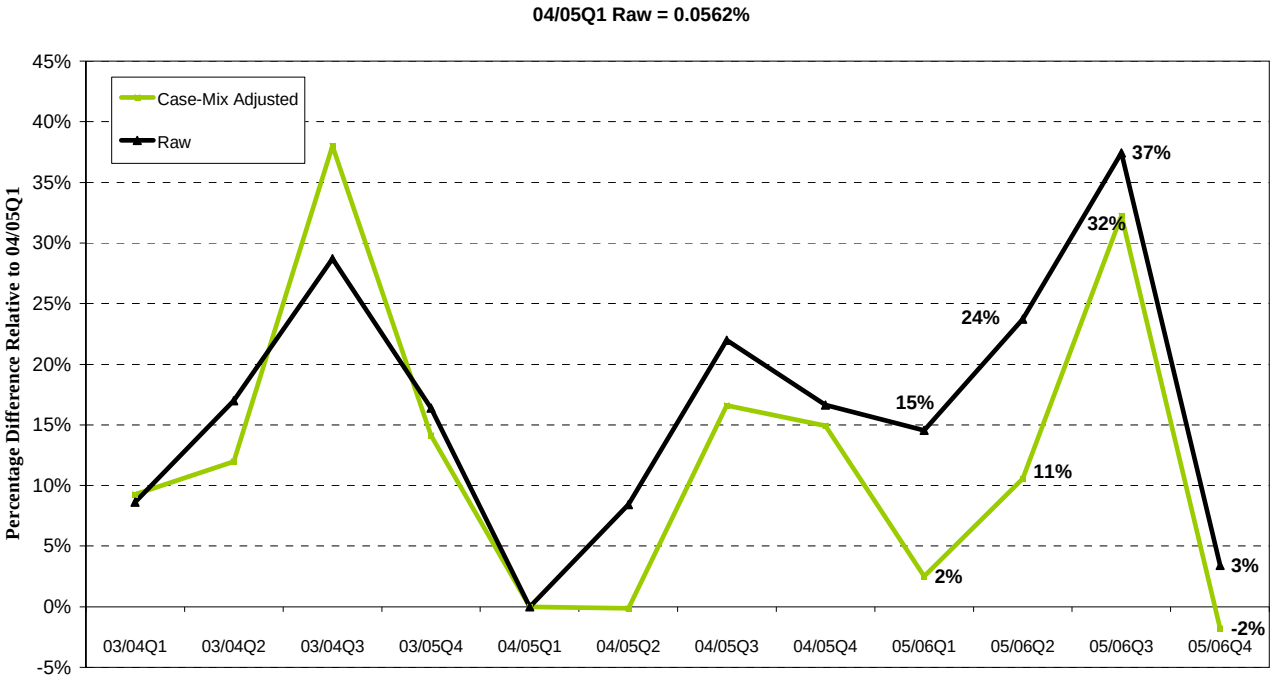
Figure 1: Raw and Case-Mix Adjusted Change in Average Monthly Incident Rates by Quarter, All Consumers, All Non-Mortality Special Incidents



Using the same baseline highlights the seasonal pattern in mortality incidents. The first quarter of every fiscal year (July to September) usually has the lowest rate of mortality incidents (Figure 2), while the highest rates are always recorded in the third quarter of each fiscal year (January to March). A similar seasonal pattern – with peaks in the winter – is seen in the rates on unplanned hospitalization. As a result of this seasonal pattern, the FY04/05Q1 baseline is an unusually low quarter, resulting in most quarters being higher than the baseline. Of course, the

small rate of mortality incidents means a small change in the number of incidents can lead to large percentage changes in the mortality rates.

Figure 2: Raw and Case-Mix Adjusted Change in Average Monthly Mortality Rates by Quarter, All Consumers



Unplanned Hospitalizations are the Largest Category of Special Incidents

As the numbers in Table 2 suggest, 40% of incidents in an average month during the fiscal year were unplanned hospitalization incidents (Figure 3). In the last year, rates were down from FY04/05 for unplanned hospitalization, injury, suspected abuse, suspected neglect and criminal victimizations (Table 4). Unplanned hospitalizations were up from FY03/04, but all other non-mortality special incident types were down.

Figure 3: Breakdown of Non-Mortality Special Incidents by Type, Monthly Average FY05/06

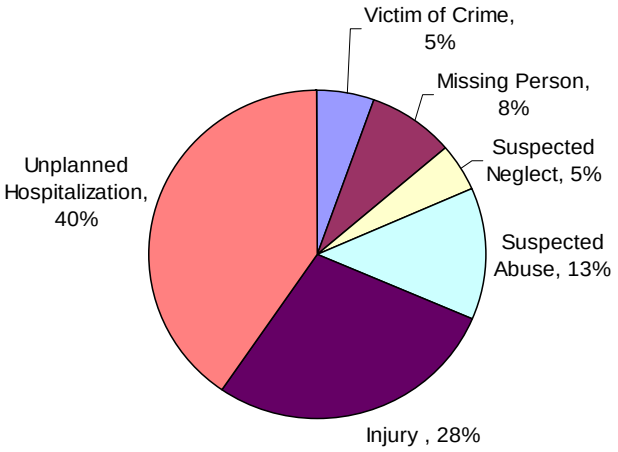


Table 4: Year-to-Year Percentage Changes in Average Monthly Rates of Non-Mortality Special Incidents by Type, FY05/06 Relative to FY03/04 and FY04/05

	Change from FY03/04		Change from FY04/05	
Unplanned Hospitalization	+3.4%	⇧	-1.4%	⇩
Injury	-1.0%	⇩	-5.3%	⇩
Suspected Abuse	-1.1%	⇩	-9.7%	⇩
Suspected Neglect	-20.7%	⇩	-16.6%	⇩
Missing Person	-6.8%	⇩	+0.2%	⇧
Victim of Crime	-12.0%	⇩	-4.8%	⇩

Consumers Who Have Experienced Special Incidents Increase Their Risk of Additional Incidents

The same analysis that allows us to account for case-mix changes can indicate which consumers might be at greater risk. Consumers with certain characteristics are more likely than the "average" consumer to experience a non-mortality special incident (Table 5). [2] These characteristics include, but are not limited to, having certain types of disability, taking some

Table 5: Consumer Characteristics Associated with Greater than 15% Heightened Risk of Experiencing a Non-Mortality Special Incident

Characteristic	% Heightened Risk Relative to Average Consumer
Epilepsy	
Partial Seizures	17.2%
General Seizures	15.2%
CDER Evaluation Levels	
Low Motor Skills	23.1%
Low Emotional Skills	35.6%
Medications	
Antipsychotic	24.9%
Antidepressants	15.4%
Sedative/Hypnotic	12.9%
Other Psychotropic	15.9%
Past Experience	
Past Suicide Attempt	54.0%
Drug/Alcohol Abuse	36.8%
Other Incident (past 1-3 months)	236.7%
Other Incident (past 4-6 months)	124.1%
Other Incident (past 7-12 months)	113.8%
Ethnicity	
Native American	32.6%
Other/Unknown Ethnicity	17.7%

Note: Model based on the consumer population living in vendored care settings. Consumers and parents are not required to report special incidents, so adverse events that occur to consumers who reside in their own homes are only subject to special incident reporting if they occur when consumers are receiving vendored care from a third party. Moreover, consumers with greater needs may be more likely to reside in long-term health care facilities or other vendored care settings, because their needs may exceed their ability or their families' ability to care for them.

[2] The "average" consumer is not a real person, but instead is a hypothetical person whose characteristics match the average proportions of all of the main characteristics in our statistical model.

types of medication, certain living arrangements, and consumers' past experiences. Consumers with the greatest risk are those who have previously experienced a special incident (Table 5). With this information, DDS and the regional centers can more effectively target services to those consumers who are most likely to benefit or who are at the highest levels of risk.

Conclusions and Next Steps

In summary, this analysis reveals that rates of non-mortality special incidents have declined over the past year. Although the DDS consumer population increased from FY04/05 to FY05/06, the average number of consumers per month experiencing a non-mortality special incident stayed at exactly the same level, thus decreasing in percentage terms (Tables 1 and 2). The slight increase in the number of mortality incidents between FY04/05 and FY05/06 was due to a large spike in the number of mortality incidents in the third quarter of FY05/06, but they were lower than the average for FY03/04 (Figure 2 and Table 3). It is important to note though, that even this large spike represents a very small number of consumers – in the third quarter of FY05/06 (the month of the spike) an average of 157 consumers died per month, while in the third quarter of FY04/05, an average of 134 consumers died per month – a difference of 23 additional deaths per month. We will be conducting further analysis to identify the circumstances associated with this spike.

Comparing FY05/06 to FY04/05 for specific non-mortality incident types, a very small increase occurred in the number of missing persons (Table 4). For the remaining incident types, there were decreases, especially in the area of suspected neglect (Table 4). Unplanned hospitalizations declined, but by a smaller percentage (though a larger number). Unplanned hospitalizations make up the largest share of non-mortality special incidents (Figure 3). The seasonal pattern in unplanned hospitalizations is also mirrored in seasonal increases in mortality.

For these reasons, Acumen is working with DDS and the regional centers to place a special focus in FY06/07 on risk management approaches for decreasing unplanned hospitalizations. This emphasis will be reflected in additional statistical analyses incorporating expanded information on Medi-Cal utilization, hospitalizations, and vital statistics to better understand the health conditions facing DDS consumers, the relative rates of hospitalization, and causes of mortality.

These analyses will be coupled with a close examination of regional center activities focused on limiting unplanned hospitalization. Acumen will survey regional centers to document the variety of programs and special projects that regional centers use to reduce rates of unplanned hospitalization. We will identify strategies that:

- Show promise in reducing unplanned hospitalizations
- Are feasible to implement widely across the system of regional centers
- Can be effectively evaluated using existing data resources

Acumen will identify the set of programs and projects that best meet these criteria and will offer intensive technical assistance to regional centers seeking to develop, implement and evaluate the latter programs and projects. Termed "Priority Activities," the work with these regional centers will generate a set of tested approaches that any, or nearly any, regional center could adopt to reduce its rate of unplanned hospitalization.

In the final phase of Priority Activities, Acumen will invite all regional centers to adopt one or more of the tested approaches to reducing rates of unplanned hospitalization and will offer technical assistance to those that wish to do so. Acumen will offer technical assistance as well to regional centers that prefer to develop, implement and evaluate still other approaches of their own design. The aim of this phase of Priority Activities is to implement tested approaches to reducing rates of unplanned hospitalization across the system and, ultimately, to see these rates fall, or increase more slowly than they otherwise would have done.