

## What the Mortality Data Really Say

The supporting materials for the August 4<sup>th</sup> meeting of the SB627 Work Group contain a sheet entitled “Mortality Facts.” While the underlying data are useful, the summary percentages for mortality in the Training Centers and the community settings mislead the casual reader to conclude, as does the Facts paper, that “Community based mortality does not exceed training center rates.” In fact, the data, properly presented, show that mortality is *higher* in the community.

### A correct analysis of the “Facts” sheet data

Here is a proper analysis of the data:

- The “Facts” state that deaths as a percentage of final census is 9.1% for the Training Centers and only 4.1% for those transitioning from TCs to community settings. The casual reader would infer that residents are more than twice as likely to die in a TC compared with a community setting.
- A proper analysis calculates a mortality rate per 1,000 residents *per year* of exposure to the risk, which yields a very different result. The mortality rate per 1,000 residents per year in the TCs was 24.3, but in the community, it was somewhat greater at 30.3. Thus, an accurate presentation of the data would have led casual readers to the proper conclusion, that it is somewhat *safer* to be in a TC than in the community – just the reverse of the impression left by the “Mortality Facts” sheet.
- These results are remarkable for two reasons: one would expect the less vulnerable residents to be able to find community placements before the more vulnerable ones who would remain in the TCs, and all of this population came from TCs who, as a group, exhibit extraordinarily high mortality rate, 3.8 to 4.8 times higher than an equal mix of normal 55-year-old men and women.

### Details of a proper but simplified analysis

The “Fact” sheet divided the 17 deaths in the community setting by the *final* census of 408 to obtain 4.1% mortality rate, while a similar division must have produced the 9.1% rate for TCs. **These percentages do not present an accurate picture because all the deaths that occurred over an 11-quarter reporting period were compared to**

**only the *final* census rather than to the *average* census over the 11 quarters.**

A proper analysis would calculate a mortality rate per 1,000 residents per year of exposure to the risk for each setting as a basis for meaningful comparison. This requires knowing not only the final census but also the census for each time period between October 1, 2011 and June 30, 2014. This is 11 quarters or 33 months of data. Since the Department published only a few snapshots during this time period, an acceptable simplifying assumption is that moves to the community as well as discharges from TCs progressed at a uniform pace.

Table 1 shows these changes in census numbers. An independent check of a few intermediate points revealed that the assumption of a linear decline would slightly underestimate actual exposure in the TCs and overestimate actual exposure in the community. Thus, the resulting mortality rates from this simplified analysis would *overestimate* TC mortality and *underestimate* it for the community.

Calculating the average census and multiplying by the 2.75 years of exposure gives the person-years of exposure shown in Table 1. Finally, the mortality rate per 1,000 residents per year is simply the deaths divided by the person-years of exposure multiplied by 1,000.

**Table 1. A Comparison of Mortality Rates per 1,000 per Year Between Training Center Placements and Community Settings for Those Transitioning from the Centers for October 1, 2011 to June 30, 2014**

	Dates	Months	Training Centers	Community Transitions
Census	Oct-11	0	1,057	0
Census	Jan-12	3	1,018	37
Census	Feb-13	16	878	198
Census	Jul-14	33	614	408
Person-Years of Exposure			2,298	561
Deaths as % Final Census			9.1%	4.1%
Deaths			56	17
Mortality rate/1,000			24.3	30.3

October 2011 Training Center census is a linear extrapolation.

January 2012 and February 2013 census numbers for

transitions to the community are linear interpolations.

The 56 deaths in the Training Centers are inferred from the

9.1% rate applied to the final census of 614.