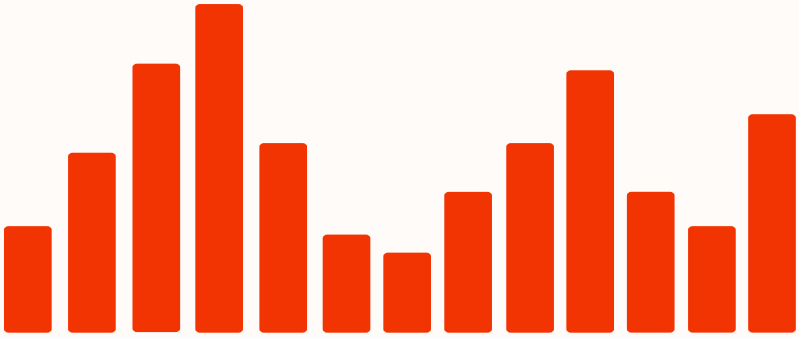
TYPES OF DATA ANALYSIS

DATA ANALYSIS TYPES

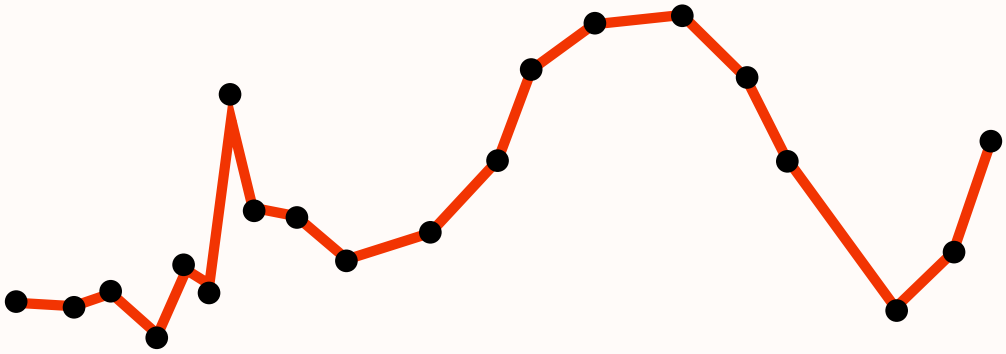
The following types of analyses represent useful tools in examining current practice, understanding changes and trends in practice, breaking down data for various subgroups of youth to examine potential disparities and otherwise understanding data about the system that is relevant to transformation.

Point-in-time Analysis



Point-in-time analysis involves analysis of a given variable at a certain, fixed point in time, such as the number of admissions to a facility or the number of youth incarcerated in a facility on a given day, the number of youth enrolled in a certain program on a given day, or the average length of stay for youth currently incarcerated. Point-in-time analysis is especially **useful for getting a sense of the day-to-day use of and demands on the system and can reveal places where certain resources are under-utilized**. For example, this analysis may reveal that specific community programs are not being utilized by the system, which would lead to further analysis as to why, or it might reveal that a certain facility is largely empty, leading to further analyses to explore the possibility of its closure.

Trendline Analysis



Trendline analysis compares point-in-time data over a given period of time—e.g., this month's data compared with data from previous months or years—t**o examine the dynamics at work in different parts of the system over time**. Usually, this is presented in the form of a simple line graph connecting the dots over given points in time. Examples of data fitting well into trendline analysis include arrests, intake, diversions, adjudications, specific dispositions, including out-of-home placements and average daily population of a facility or program, or average length of stay.

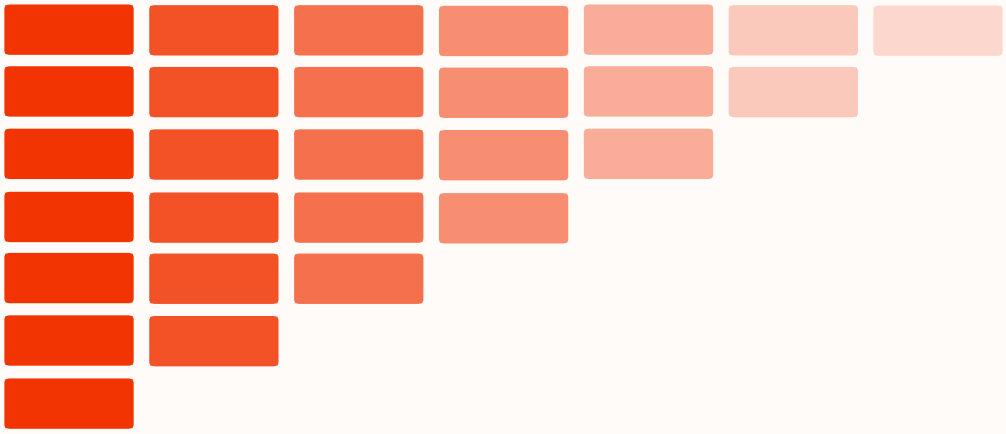
For example, a given trendline analysis might look at the number of diversions to community programs over a given period of time, the average daily population of a facility over a period of time, or the number of youth placed in facilities over a period of time. **The results of the analysis may reveal a trend that appears to be aligned with transformation**—such as decreasing numbers of youth sent to out-of-home placement, **or a trend that calls for further work**, such as increasing numbers of out-of-home placements. **One trend analysis may call for additional analyses to examine potential underlying causes for a given trend.** For example, increases in the daily population of a facility may lead to further analyses to investigate the cause(s) of these increases, such as increased admissions to the system, increased arrest rates, increased court commitments and/or increased filings by the prosecutor. A daily population increase might also reflect increased lengths of stay due to a lack of alternative placements or delays in court processing.

Superimposing multiple trend lines on one graph can also present patterns deserving of deeper investigation. In some cases, such comparisons can reveal problematic trends that lie below the surface of apparently favorable trends. For example, the average daily population trendline for a given jurisdiction's placement facilities may show steady and fairly substantial *reductions* over the

last decade. Yet the trendline for youth felony arrests may show an even steeper decline, suggesting that a higher proportion of youth with less serious charges are now being incarcerated.

Trendline data is one type of comparison: today's data compared to past data in the same jurisdiction. Other comparisons may include looking at the same data among a variety of similar jurisdictions. For example, a 40% decline in average daily population over a 15-year period may look like laudable progress in a particular jurisdiction, until this decline is compared with declines in other jurisdictions of over 60% during the same time period.

Cohort Analysis



Cohort analysis examines data for a group of youth (a "cohort") entering the system in the same given time period—for example, all youth who enter during a particular month or a quarter—and tracks their pathways through the system as a collective. **This approach can reduce the risk of biased or incomplete analysis from using isolated point-in-time data, and is useful to track groups of youth that are subject to a specific change in policy or practice in order to gauge the effect of that change.** For example, assume that 100 youth are detained upon arrest in a given jurisdiction during the month of March. Fifty of them are released back to their families almost immediately, and another 35 remain in detention for less than 30 days, with 15 remaining in detention for 30 days or more. Calculating the average length of stay for the detention population based on a one-day count (a point-in-time analysis) will over-estimate the actual average length of stay of youth in detention, because the count omits many of the youth who had very

short stays, and youth with long stays will be over-represented. Cohort analysis can reveal opportunities for significant reduction in bed days, and increased use of alternative programs. For example, youth who leave detention within a day or two should probably be diverted from detention entirely, to a supportive program or otherwise. Case processing times can be improved for youth with very long stays, and considering alternative programs for these youth too can dramatically decrease the total number of bed days overall.

Disaggregation Analysis

Disaggregation analysis **breaks down a given data point by subgroups of youth with unique characteristics**, such as race, ethnicity, gender, age, sexual orientation, and geography, **to understand differences in practice that may exist based on those characteristics**. For example, a jurisdiction might break down data on admissions to detention by a young person's instant offense type and their race, to determine if Black youth are more likely to be detained than white youth while presenting similar instant offenses.

Statistical summaries when used alone can mask significant disparities in practice related to different subgroups of youth. For example, overall length of stay in detention or placement and daily institutional population may be falling in the aggregate. But when these variables are disaggregated by race, the data may reveal that the length of stay and average daily population for Black youth have actually *risen* during the same time period, exacerbating racial disparities in the use of detention or placement. A similar finding might apply to young women, LBGTQ youth, youth from a particular neighborhood or youth charged with certain types of offenses. All data analysis should include disaggregation to assess for systemic disparities and well as system bias. ■

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