

# Tips for Visualizing Your Early Warning System Data

**REL**  
Regional  
Educational  
Laboratories



Check that your data are clean and well documented.<sup>1,2</sup>



Define the key indicators you need to explore, such as student attendance, behavior, or course performance.<sup>3,4</sup>



Determine which and what type of variables you will use, such as unexcused absences, suspensions, or standardized test scores.<sup>5,6</sup>



Choose the type of visualization to show the data relationships you want to see.<sup>7,8</sup>



Remove elements that distract from the data and add elements that help make the meaning clear to your audience.<sup>9,10</sup>



Publish your revised visualization on your dashboard, website, or report.<sup>11,12</sup>

# Example of a good data visualization

Findings highlighted for audience

Context for visualization provided

Clean presentation of visual

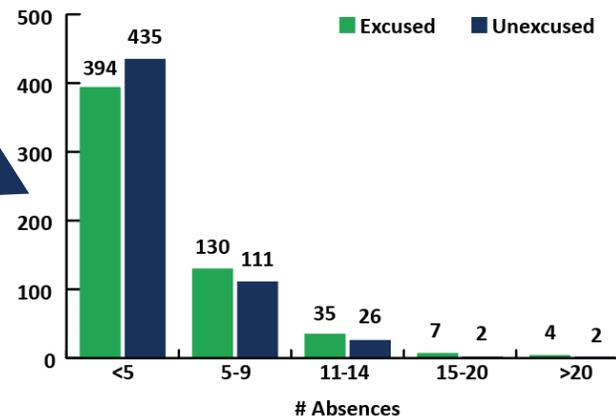
Data source included

Over 6 percent of students in our district (450 students total) exhibited at least one high-risk dropout indicator during the first semester.

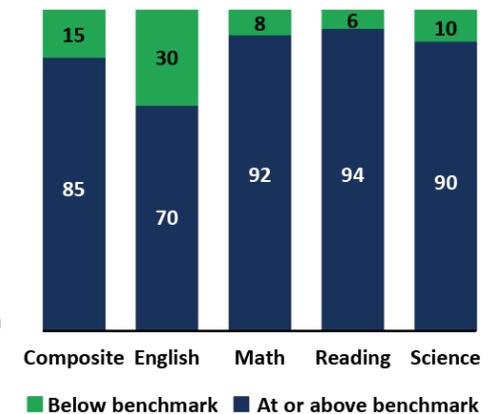
High-risk indicators for dropout include more than five unexcused absences in a semester, "F" semester course grades, grade point averages below 1.2, and any out-of-school suspensions.

At-risk flags	0	1+	
# Students	6,567	450	
Out-of-school suspensions	0	1+	Low-risk dropout indicator
# Students	6,856	161	Medium-risk dropout indicator
Grade point average	>1.5	1.5-1.2	<1.2
# Students	5,948	855	214
Semester course grades	0 "F"	1+ "F"	
# Students	6,596	421	

Excused and Unexcused Daily Absences (# Students)



Benchmark Summary %



Source: Hypothetical district early warning system data.

# References and Resources



- <sup>1</sup> David Herzog, *Data Literacy: A User's Guide*. Los Angeles: Sage Publications, 2016.
- <sup>2</sup> Manage Data. Better Evaluation (n.d.) Retrieved in August, 2016 from [http://betterevaluation.org/plan/describe/manage\\_data](http://betterevaluation.org/plan/describe/manage_data)



- <sup>3</sup> Sarah Frazelle and Nigel Aisling, *A Practitioner's Guide to Implementing Early Warning Systems*. REL 2015-056 at [https://ies.ed.gov/ncee/edlabs/regions/northwest/pdf/REL\\_2015056.pdf](https://ies.ed.gov/ncee/edlabs/regions/northwest/pdf/REL_2015056.pdf)
- <sup>4</sup> "Considering the Best EWS Model to Fit Your Needs," REL Appalachia webinar, May, 2016 at [https://www.youtube.com/watch?v=oFN\\_d1uB5D8](https://www.youtube.com/watch?v=oFN_d1uB5D8)



- <sup>5</sup> U.S. Department of Education, National Center for Education Statistics, *SLDS Spotlight: Development and Use of Early Warning Systems*, April 2012, at [https://nces.ed.gov/programs/slds/pdf/Early\\_Warning\\_Systems\\_FINAL.pdf](https://nces.ed.gov/programs/slds/pdf/Early_Warning_Systems_FINAL.pdf)
- <sup>6</sup> David Tanner, *Using Statistics to Make Educational Decisions*. Los Angeles: Sage Publications, 2012.



- <sup>7</sup> Stephen Few, *Now You See It: Simple Visualization Techniques for Quantitative Analysis*. Oakland, Calif.: Analytics Press, 2009.
- <sup>8</sup> Christopher Lysy, "Developments in Quantitative Data Display and Their Implications for Evaluation," in Tarek Azzam and Stephanie Evergreen, eds. *Data Visualization, Part 1*. *New Directions for Evaluation* 139 (Fall, 2013), 33-51. <http://onlinelibrary.wiley.com/doi/10.1002/ev.20065/full>



- <sup>9</sup> Edward R. Tufte, *The Visual Display of Quantitative Information*. Second Edition. Cheshire, Conn.: Graphics Press, 2001.
- <sup>10</sup> Stephen Few, *Show Me the Numbers: Designing Tables and Graphs to Enlighten*. Burlingame, Calif.: Analytics Press, 2012.



- <sup>11</sup> Veronica S. Smith, "Data Dashboard as Evaluation and Research Communications Tool," in Tarek Azzam and Stephanie Evergreen, eds. *Data Visualization, Part 2*. *New Directions for Evaluation* 140 (Winter, 2013), 21-45. <http://onlinelibrary.wiley.com/doi/10.1002/ev.20072/abstract>
- <sup>12</sup> U.S. Department of Education, Institute of Education Sciences, *REL Graphic Design for Researchers*, May 2014. Available at <http://files.eric.ed.gov/fulltext/ED545255.pdf>