Appendix F: Automated Tools for Calculating Core ERP Measures

Several tools are freely available to assist in calculating many of the core measures defined in this guide, and a key priority of the Consortium is to help improve the capabilities of tools in facilitating states' reporting. This appendix provides information on four ERP analysis tools and two ERP sample planning tools. Contact information for obtaining each tool is also provided. Please note that, even for states using these tools, the Consortium suggests consulting a qualified statistician on the design, implementation and analysis of random samples.

ERP states are invited to contact the chairperson of the Consortium's Reporting Results Workgroup for the most up-to-date information on available tools for data storage, analysis and reporting, as well as to provide feedback on new and existing tools.[1]

Tools for ERP Analysis

1) ERP Performance Analyzer (Fully Automated)

The ERP Performance Analyzer, developed for Massachusetts and Colorado by Tetra Tech EMI, is a fully automated system for managing checklists and certifications and analyzing the results.   Benefits include streamlining data management and automated calculations and reporting. Users should anticipate taking time for self-training to take full advantage of system benefits.

The ERP Performance Analyzer system has two components. The first component is a Microsoft Access database that:

> ➢ Stores facility certification statement and inspector checklist results for each round;
> ➢ Calculates the achievement rates for each indicator (including EBPIs) and average facility scores for groups of indicators for each round of inspections;
> ➢ Compares the results for any two rounds;
> ➢ Compares inspector findings with certification statements within a round;
> ➢ Automatically produces charts and tables for displaying the results; and
> ➢ Produces Excel tables for statistical analysis.

The second component uses JMP software to perform statistical analyses of inspection-based data, using standard confidence levels. The user can select from among different confidence levels and various pre-defined statistical analyses. The system automatically calculates:

> ➢ The confidence interval for the observed achievement rate for each indicator (including EBPIs) for each round being compared;

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[1] Current contact information can be found at: http://www.erpstates.org/consortiumContacts.aspx.

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> ➢ Whether the differences in achievement rates between rounds are statistically significant; and
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> ➢ Whether the discrepancies between the certifications and checklists are statistically significant for each indicator.

The system and a user's manual are available from Susan.Peck@state.ma.us. However, states will need to make arrangements to purchase their own version of JMP software or work with another agency that has a copy to do the statistical analyses. States should also be prepared to invest time in learning proper utilization of the system, to take advantage of the benefits of automation.

2) EBPI Results Pro (Partially Automated)
The EBPI Results Pro is a multi-sheet Microsoft Excel workbook developed for Vermont DEC, based EPA's ERP Results Analyzer (the latter is discussed in a subsequent item). For a single round of random inspections, the tool will automatically process the proportions and confidence intervals for up to 30 EBPIs. The tool will also provide a distribution of facility scores, average facility score and confidence interval for that average facility score. Results are presented in tabular and graphic format. Users can select a 90% or 95% confidence level.

Contact Beth Termini (termini.beth@epa.gov) of EPA for a copy of the tool.

3) ERP Results Analyzer (Non-Automated)
ERP Results Analyzer is a user-friendly spreadsheet tool developed on behalf of EPA's National Center for Environmental Innovation (NCEI). For a single round of random inspections, users can calculate the confidence interval associated with a proportion (such as an achievement rate for an EBPI) or a mean (such as pounds of hazardous waste generated). For two rounds of random inspection data, users can calculate the difference between observed proportions or between observed means. The Results Analyzer also provides the confidence interval for those differences, and informs the user when the confidence interval indicates that there is a significant difference (i.e., a statistically significant change in performance).

Users can select a 90% or 95% confidence level. A variety of measures can be calculated using this tool, but raw data for each measure must be input manually. The tool does not automatically read data sets, as the other tools presented in this section do.

Contact Beth Termini (termini.beth@epa.gov) of EPA for a copy of the tool.

4) MADEP CI Calculator.xls (Non-Automated)
This tool is a Microsoft Excel-based calculator that can be used to estimate the confidence intervals associated with the observed performance on an indicator, at any confidence level.

Contact Suzi Peck (Susan.Peck@state.ma.us) of Massachusetts DEP for a copy of the tool, or visit the ERP Consortium project on the EPA Science Connector.

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Tools for ERP Sample Planning

1) ERP Sample Planner (Non-Automated)
The ERP Sample Planner is a user-friendly Microsoft Excel-based tool developed on behalf of EPA NCEI. The Sample Planner uses plain-language and annotations to help statistical novices estimate sample size requirements for a given confidence interval or, alternately, estimate the confidence interval associated with a given sample size, based on resource constraints.

Contact Beth Termini (termini.beth@epa.gov) of EPA for a copy of the tool.

2) MADEP Sample-Size Calculator.xls (Non-Automated)
This Microsoft Excel-based tool can help users estimate required sample sizes at any confidence level.

Contact Suzi Peck (Susan.Peck@state.ma.us) of Massachusetts DEP for a copy of the tool, or visit the ERP Consortium project on the EPA Science Connector.

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