Evaluating Predictive Models

Evaluation is the final step in applying predictive models in a government agency. OEDA develops the predictive model, which then undergoes an ethnical discernment checklist. After the model passes the ethics checklist, it gets implemented. After implementation, the model will be evaluated. Evaluating predictive models follows a similar approach as program evaluation and implementation science.

Evaluation is a systematic way to improve government actions by involving procedures that are useful, feasible, ethical, and accurate. The emphasis is on practical, ongoing evaluation strategies that involve all program stakeholders, not just evaluation experts.

Implementation Science is defined as putting a program to work in areal setting to bring benefits to the population you want to serve. It draws on all research methods. Particular attention should be paid to the issue of organizational culture change to value the use of data in decision making. Evaluation and implementation science are crucial in understanding how a predictive model is used as a decision support tool.

Steps in Evaluation Practice
The steps of effective evaluation are interdependent and may be used iteratively. Adhering to these steps will help understand why the predictive model was developed and improve on how it will be evaluated.

Standards for Effective Evaluation
These four standards help answer the question “Will this evaluation be effective?” and serve as criteria for judging the quality of program evaluation efforts.

- **Utility**
  - Serve the information needs of intended users.

- **Feasibility**
  - Be realistic, prudent, diplomatic, and frugal.

- **Propriety**
  - Behave legally, ethically, and with regard for those affected.

- **Accuracy**
  - Reveal and convey technically accurate information.

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OEDA's Hybridization of Evaluating Predictive Models after Implementation

Methodology
Evaluating how predictive models are used after implementation may take several different methodological approaches. One method is to pilot the model in a single district and collect data pre and post implementation. Data collection involves using qualitative and quantitative methodologies. Semi-structured interviews, focus groups, and/or surveys with staff will be used to evaluate how they are using the model and how it has impacted their decisions.

Research Questions
The evaluation of the predictive model would include the following types of research questions:

* How has the model impacted decisions by field staff?
* What is the efficacy of the tool for its ability to analyze and take public action?
* How has the model been applied in each of the pilot sites and what is its potential broad scale diffusion?
* How useful has the model been in showing the connection between specific outcomes for local staff, the general public, and policy makers?

Results
Evaluation results will be published in a publically available report that includes a combination of quantitative and qualitative findings. The report would include detailed methodology, including data sources, and discuss the following tentative types of analysis:

* Qualitative quotes from program participants
  
  “I have a clear understanding of the meaning of the term inequity.”
  “I am familiar with the major inequities affecting residents in the community we serve.”
  
  * Summary statements of results
  * Before and after knowledge assessment
  * Preferences for delivery format of model
  * Assessment of changes in how decisions are made
  * Assessment of staff attitudinal changes
  * Concerns about system-wide implementation

Next Steps
OEDA will continue to explore the publication of additional materials as part of the evaluation process. Potential products include technical documentation, report feedback, and online publications.


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