Empowering Policymakers: Examining User-Friendly Data Analytic Tools

Alison Buckser, MPH; Daniel Gilden, MS; Chris Coulthard, MS; JEN Associates, Inc., Cambridge, MA

How large data sets are used to address important public health issues.

To make informed decisions, policymakers need to know the consequences of the different options they face. Analyzing large data sets can determine the drivers of cost, quality, and access in health care. Thus, large health data sets can drive discussions around prevention and wellness for all populations at all ages. Policymakers can analyze large data sets to:

Track quality indicators to measure how well a program is meeting its quality outcomes.

- Tracking the number of emergency room visits in a state would show how often individuals have acute episodes that are severe enough to lead them to the emergency room. This would help a policymaker judge whether a specific intervention was helping reduce ER visits.

Improve healthcare fraud detection and prevent payments of false healthcare billings.

- Analyzing submitted hospital data could help identify and prevent suspicious activity and fraudulent behavior. This would help hospitals avoid fraudulent billings by using newly developed best practices.

Predict individuals who are at risk of long-term nursing facility admission.

- Using Medicaid and Medicare data, policymakers can look at impairment, age, gender, and payer to target and identify the population of vulnerable individuals eligible for intervention strategies.

Examine how access to prescription drugs and health outcomes under Part D has changed for dual eligibles.

- Analysis can determine whether dually eligible members with specific chronic diseases experience a disruption of pharmacy benefits under Medicare Part D that could put them at for high-risk for negative health outcomes

Understand high cost/high need populations in order to target and design programs for these populations

- Using healthcare modeling data, Kaiser Permanente has suggested that aspirin, lovastatin and lisinopril be administered to patients at high risk of serious cardiac conditions. Based on this recommendation, rates of heart attacks and strokes observed in at-risk individuals fell by 60 percent during a two-year period.

Conduct program evaluations focusing on the effectiveness of a new program against goals and outcomes.

- Use administrative data to analyze payment and utilization, access to care, and relative risks of nursing home entry and lengths of stay.

The problems policymakers face in using large data sets.

Unfortunately, although there is more data than ever before, it is still difficult for policymakers to ask the important questions of the data.

Many organizations have lost dedicated staff who analyze these large data sets for policymakers.

- The recession has battered state government, many of which have responded by laying off staff, offering early retirement, and not filling open positions. This has meant that the same amount of work is being done by fewer individuals. In addition, decades of institutional knowledge has been lost as experienced people have left without being able to pass their knowledge onto their replacements.

While critical to protecting PHI, HIPAA and FISMA have created additional barriers to accessing the data.

- HIPAA, the American Health Insurance Portability and Accountability Act of 1996, is a set of rules that help ensure that all medical records, medical billing, and patient accounts meet certain consistent standards with regard to documentation, handling, and privacy. HIPAA requires administrative, physical, and technical safeguards for the protection of electronic systems, equipment and data, as well as the authentication and encryption used to control data access. Fines can be up to $250,000 for violations or imprisonment up to 10 years for knowing abuse or misuse of individual health information.
- FISMA, the Federal Information Security Management Act of 2002, requires each federal agency to implement agency-wide programs to order to strengthen their information system security. Federal information systems must meet the minimum security requirements, and an agency official is fully accountable for any adverse impacts to the agency if a security breach occurs. All accredited systems must continually monitor a selected set of security controls and the system documentation is updated to reflect changes and modifications to the system.
- Extra layers of security and protection add difficulty to gaining access to data sets.

Standard database approaches to these problems often require complex programming in order to extract necessary results.

- This programming can require extensive training and/or certification from users.
- It can take days or weeks for policymakers to be given the data that they requested.

How analytic tools should be designed for policymakers.

Database analysis models need to be designed so that policy analysts can delve into the data sets themselves. Therefore, the models and their interfaces must:

Be customizable based on the user's needs.

- Allow the user to look at specific populations, outcomes, or financial performance measures based on the user's need and by the user's criteria.
- Offer more flexibility than dashboards or data cubes.
- Accommodate many different data types.
- Support large-scale data extracts.

Be intuitive and easy to use.

- Allow the user to focus on the conceptual elements of a question.
- Include visually oriented tools.
- Encourage word searches so the user does not have to hunt for answers.
- Offer instructional tools.
- Respond to user questions and complaints.
- Never require programming.
- Never require the user to understand all the components of the dataset .

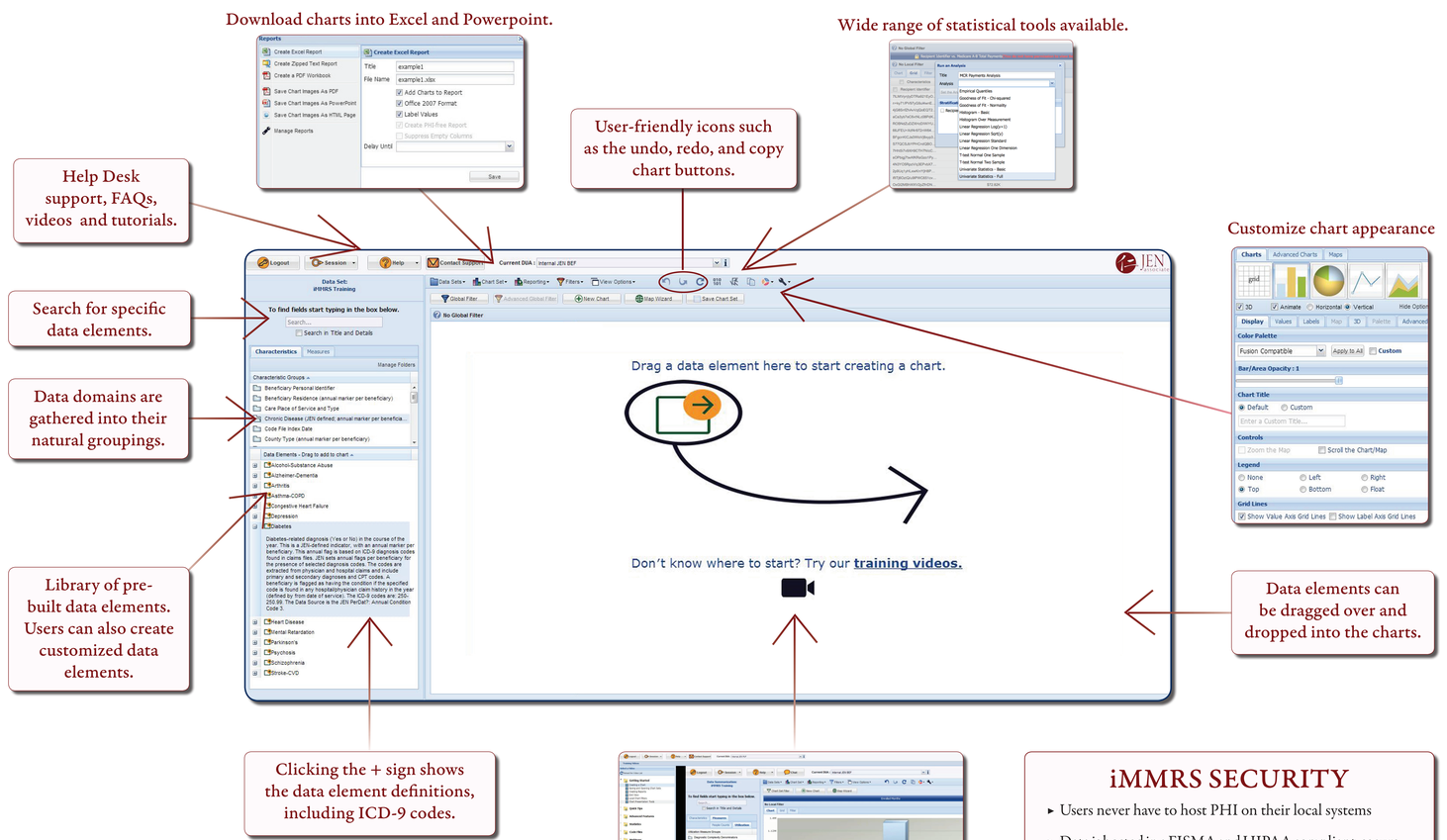
Be fully compliant with HIPAA and FISMA.

- Have administrative, physical, and technical safeguards in place.
- Have strong encryption and authentification systems in place.
- Prevent any potential identification of an individual.

Be fast and real time on linc.

- Enable the user to obtain their analysis in minutes, not days or weeks.
- Produce reports within minutes.

iMMRS is an example of an interface designed for policymakers to analyze large datasets.

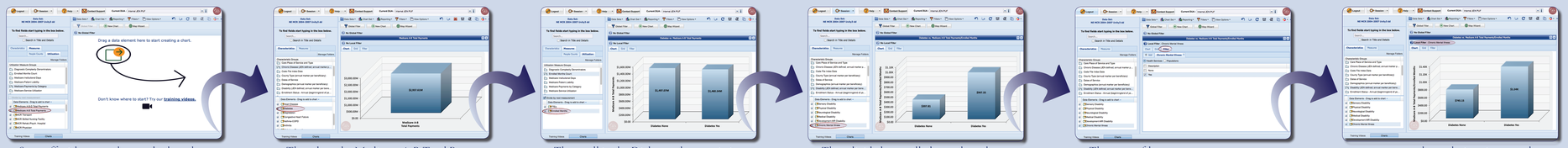


2 minute instructional videos.

iMMRS SECURITY

- Users never have to host PHI on their local systems
- Data is hosted in a FISMA and HIPAA compliant, secure data warehouse
- Users are restricted to specific data use agreements (DUAs)
- Users log in through a two-factor authentication to establish a secure VPN connection.
- Rows with population counts less than 11 have the counts suppressed along with any sensitive fields associated with the suppressed counts (e.g., FIPS County Codes).
- All sensitive identifiers, including person ID and provider ID, are encrypted.

Tip-of-the-iceberg analysis in 6 steps and under 5 minutes.



Start off with a new chart and select the measure of interest—Medicare A-B Total Payments

Then drag the Medicare A-B Total Payments measure into the chart to learn the Medicare A & B payments for this population.

Then pull in the Diabetes characteristic to learn how much Medicare A & B paid for people who do and do not have diabetes.

Then divide by enrolled months to learn the PMPM (per member per month).

Then use a filter . . .

. . . to narrow the analysis to just people with chronic mental illness.