Shifting Data Quality Follow-Up Methods for a Time-Series Collection of Local and State Agencies

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Overview of Presentation

- Acknowledgements
- Mortality in Correctional Institutions (MCI) and Annual Survey of Jails (ASJ) collections
- Introduction to Data Quality Follow-up (DQFU)
- Research Questions
- Revisiting DQFU definitions and protocols
- Results of modified DQFU protocol
  - Timing of contacts
  - Timing of resolutions
  - Case resolution rates
  - Item response rates
  - Budgetary
- Lessons Learned
- Conclusions
Acknowledgements

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- RTI International
  - Scott Ginder, MCI-ASJ Analysis and Reporting Task Leader
  - Megan Waggy, MCI-ASJ Data Collection Manager

The views expressed in this presentation do not necessarily reflect the official policies of the U.S. Department of Justice or the Bureau of Justice Statistics; nor does mention of trade names, commercial practices, or organizations imply endorsement by the U.S. Government.

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Mortality in Correctional Institutions

- Formerly known as Deaths in Custody Reporting Program (DCRP)
- Primary source of mortality statistics within the American correctional system
  - 50 state Departments of Corrections (DOCs)
  - Approximately 2,900 local jail jurisdictions
- Multimode data collection
  - Respondents are typically prison and jail administrators
  - Respondent submission of agency administrative data
  - Two forms: individual death reports and annual summary
  - Web, paper, fax, e-mail, bulk data file, and (during nonresponse follow-up) telephone
Annual Survey of Jails

- Collects data annually from a sample of local jail jurisdictions
- Data are used to estimate:
  - Number, characteristics of jail inmates
  - Jail capacity
  - Other key jail population statistics
- The 2015–2016 ASJ was integrated into the MCI collection, whereby ASJ jails
  - Received tailored communications
  - Submitted data via an expanded form
  - Still provided customary MCI data
  - Submitted data via the same multimodes as MCI
What is DQFU?

DQFU = Data Quality Follow-Up

- MCI and ASJ DQFU
  - Post-data submission contacts to agencies
  - Focused on outstanding data quality issues
    - More involved than question-level web validation
    - Cross-variable or even cross-form consistency checks
    - Cross-year comparisons, given time-series nature of collection
  - Conducted by project team members
  - Completed via telephone and e-mail
Historical Approach to DQFU

- Traditional DQFU
  - June–July of collection cycle
  - Initiated after the bulk of national data received

- Challenges of Traditional DQFU
  - Delayed contact with early responders (up to 4.5 months)
  - Potential change in agency data suppliers (e.g., attrition, transfer)
  - Limited window of time for DQFU
    - Required relatively high number of staff
    - Increased per person costs (e.g., training hours, management time)

- Potential benefits of Early* DQFU
  - Greater ease of correcting the data (respondent recall, recency effect)?
  - Improved agency- and item-level resolution rates?
  - Improved efficiency of making agency contacts?

* Initiating DQFU within 2 weeks of data submission throughout data collection window.
1. Will data quality throughout data collection be enhanced through earlier, real-time contacting of responding agencies?

2. For agencies undergoing Early DQFU, what impact is there on time-to-contact and time-to-resolve?

3. Will conducting DQFU over an extended period, versus a compressed period, lead to lower cost per case resolutions?

4. What impact will doing DQFU on a continual basis, starting earlier in the collection schedule, have on project planning and resources?
Two-Stage Redesign of DQFU

- Initial pilot of Early DQFU for RY2015
- Full implementation of Early DQFU for RY2016

<table>
<thead>
<tr>
<th>Team Size</th>
<th>Duration</th>
<th>Start</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional Design</td>
<td>RY2014</td>
<td>~7 staff</td>
</tr>
<tr>
<td>E-mail Design</td>
<td>RY2015</td>
<td>~2 staff</td>
</tr>
<tr>
<td>Early Design</td>
<td>RY2016</td>
<td>~3 staff</td>
</tr>
</tbody>
</table>
Local Jails: Early DQFU Application

PERCENT OF DQFU CASES RECEIVING EARLY DQFU

RY2015 | RY2016
--- | ---
ALL JAILS | 28.1% | 74.3%
n = 879 | n = 884
MCI-ONLY | 23.8% | 66.8%
n = 371 | n = 346
ASJ | 26.8% | 79.2%
n = 507 | n = 538
Results of Full Implementation of Early DQFU Protocol
Local Jails: Time From Response to DQFU Contact

- Early DQFU is resulting in
  - Contact to agencies closer to their initiation of forms
  - Sooner initial contact with agency during the DQFU period
- Traditional DQFU contact times are also improved
  - Still needed for partial responders
  - Times likely benefitting from most cases going through Early DQFU
- Overall, Early DQFU is resulting in earlier contact to all agencies

Average Annual Summary Form start date was 30 days later in 2016 than 2014 and 2015 because of timing of launch.
### Average Elapsed Days From First DQFU Contact to Resolution

<table>
<thead>
<tr>
<th>Year</th>
<th>Method</th>
<th>Overall</th>
<th>MCI-Only</th>
<th>ASJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>Traditional DQFU</td>
<td>25.8</td>
<td>24.4</td>
<td>28.1</td>
</tr>
<tr>
<td></td>
<td>Early DQFU Pilot (E-mail)</td>
<td>52.1</td>
<td>43.3</td>
<td>58.8</td>
</tr>
<tr>
<td>2015</td>
<td>Traditional DQFU</td>
<td>26.7</td>
<td>26.6</td>
<td>26.8</td>
</tr>
<tr>
<td></td>
<td>Early DQFU Pilot (E-mail)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>Traditional DQFU</td>
<td>19.5</td>
<td>17.6</td>
<td>22.2</td>
</tr>
<tr>
<td></td>
<td>Early DQFU (E-mail/TEL.)</td>
<td>18.4</td>
<td>14.1</td>
<td>20.8</td>
</tr>
</tbody>
</table>
Compared to 2014, resolution rates for 2015 DQFU cases decreased (−3.6%) – 2015 was initial integration of ASJ with MCI, so likely primary factor

2016 rates were the highest across all three comparison groups
Local Jails: Item Response Rates, Selected ASF Items

FINAL ASF ITEM RESPONSE RATES

<table>
<thead>
<tr>
<th>Category</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confined Males</td>
<td>99.6%</td>
<td>99.9%</td>
<td>99.6%</td>
</tr>
<tr>
<td>Confined Females</td>
<td>99.5%</td>
<td>99.9%</td>
<td>99.6%</td>
</tr>
<tr>
<td>Admitted Males</td>
<td>98.6%</td>
<td>99.2%</td>
<td></td>
</tr>
<tr>
<td>Admitted Females</td>
<td>98.6%</td>
<td>99.2%</td>
<td></td>
</tr>
<tr>
<td>Average Daily Population (ADP) Males</td>
<td>98.7%</td>
<td>99.6%</td>
<td></td>
</tr>
<tr>
<td>Adp Females</td>
<td>98.7%</td>
<td>99.6%</td>
<td></td>
</tr>
<tr>
<td>Deaths Males</td>
<td></td>
<td>99.2%</td>
<td>99.7%</td>
</tr>
<tr>
<td>Deaths Females</td>
<td></td>
<td>99.1%</td>
<td>99.7%</td>
</tr>
</tbody>
</table>

DEATHS FEMALES
MCI: Item Response Rates, Selected Death Record Items

FINAL DEATH RECORD ITEM RESPONSE RATES

<table>
<thead>
<tr>
<th>Item</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIRTH MONTH</td>
<td>99.8%</td>
<td>99.7%</td>
<td>99.7%</td>
</tr>
<tr>
<td>BIRTH DAY</td>
<td>99.8%</td>
<td>99.7%</td>
<td>99.7%</td>
</tr>
<tr>
<td>BIRTH YEAR</td>
<td>99.8%</td>
<td>99.7%</td>
<td>99.7%</td>
</tr>
<tr>
<td>SEX</td>
<td>100.0%</td>
<td>99.7%</td>
<td>100.0%</td>
</tr>
<tr>
<td>HISPANIC</td>
<td>98.6%</td>
<td>99.3%</td>
<td>99.9%</td>
</tr>
<tr>
<td>RACE</td>
<td>99.9%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>LEGAL STATUS</td>
<td>99.9%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>CAUSE OF DEATH</td>
<td>98.6%</td>
<td>99.2%</td>
<td>99.4%</td>
</tr>
</tbody>
</table>
- **RY2014** – Traditional DQFU; MCI-only (short form)
- **RY2015** – Early DQFU followed by traditional DQFU, MCI/ASJ
- **RY2016** – *Early DQFU* followed by traditional DQFU, MCI/ASJ

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>% Resolved</td>
<td>82%</td>
<td>78.4%</td>
<td>84.6%</td>
</tr>
<tr>
<td>Hours per Case</td>
<td>0.71</td>
<td>0.98</td>
<td>0.85</td>
</tr>
</tbody>
</table>

*HPC includes time spent on cases that were not contacted for DQFU. Sometimes data quality errors can be resolved without agency outreach.*
Lessons Learned
Lessons Learned – What Defines a DQFU Case

- New Early DQFU protocol required redefining when cases could/should be worked:
  - Had the agency submitted all of their data?
    - If an agency was still working on their form, for example, we don’t want to ask them about data quality errors just yet.
  - Had we (RTI) completed our internal review of the data?
    - MCI reviews all text fields to facilitate recoding.
    - MCI reviews all reported causes of death (COD) to ensure that information provided is sufficient for medical coding.
Lessons Learned – What Defines a DQFU Case (cont.)

- RY14 Traditional DQFU
  - Agency has errors
  - DQFU
  - If ASJ
    - RTI completed text review
    - Assigned to Experiment
    - DQFU
  - If MCI-only
    - Agency submitted minimum # DRs
    - RTI completed text review
    - Assigned to Experiment
    - DQFU

- RY15 Early DQFU
  - Agency has errors
  - DQFU
  - If ASJ
    - RTI completed text review
    - Assigned to Experiment
    - DQFU
  - If MCI-only
    - Agency submitted minimum # DRs
    - RTI completed text review
    - Assigned to Experiment
    - DQFU

- RY15 Traditional DQFU
  - Agency has errors
  - DQFU
  - If ASJ
    - RTI completed text review
    - Assigned to Experiment
    - DQFU
  - If MCI-only
    - Agency submitted minimum # DRs
    - RTI completed text review
    - Assigned to Experiment
    - DQFU

- RY16 Early DQFU
  - Agency has errors
  - DQFU
  - If ASJ
    - RTI completed text review
    - Assigned to Experiment
    - DQFU
  - If MCI-only
    - Agency submitted minimum # DRs
    - RTI completed text review
    - Assigned to Experiment
    - DQFU

- RY16 Traditional DQFU
  - Agency has errors
  - DQFU
  - If ASJ
    - RTI completed text review
    - Assigned to Experiment
    - DQFU
  - If MCI-only
    - Agency submitted minimum # DRs
    - RTI completed text review
    - Assigned to Experiment
    - DQFU

- RY17 Early DQFU
  - Agency has errors
  - DQFU
  - Agency submitted ASF (or idle >2 weeks)
    - Agency submitted minimum # of DRs (or idle >2 weeks)
    - RTI completed text and COD review
    - DQFU

Lesson Learned: Be organized!
Conclusions
1. Will data quality throughout data collection be enhanced through earlier, real-time contacting of responding agencies?

- As measured by resolution of cases needing DQFU
  - Average RY2016 resolution rates for local jails improved compared to RY2015 and RY2014
  - Resolution rates improved for MCI-only and ASJ agencies from RY2015 to RY2016

- As measured by impact on key variable item-level response rates
  - Annual summary form rates already averaged 98%-99% per item
  - With the application of the Early DQFU protocol, these rates were sustained
  - Thus, the impact of Early DQFU for RY2016 had very little impact on item-level response rates
2. For agencies undergoing Early DQFU what impact is there on time-to-contact and time-to-resolve?

➢ Time from when a form was begun – Early DQFU in RY2016 resulted in contacting agencies 12 days sooner than in RY2015.

➢ Time from when DQFU began until initial contact – also decreased under the new, Early DQFU methodology.

➢ Time from initial contact to resolution – markedly decreased with the Early DQFU methodology.
3. Will conducting DQFU over an extended period, versus a compressed period, lead to lower cost-per-case resolutions?

➢ As a reminder, there was an increased resolution rate from RY2015 to RY2016

➢ In addition to this boost in successful resolutions, efficiency (measured by hours per case) also improved

<table>
<thead>
<tr>
<th></th>
<th>RY2015</th>
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</table>
4. What impact will doing DQFU on a continual basis, starting earlier in the collection schedule, have on project planning and resources?

➢ One significant impact was having to move DQFU-related programming up to coincide with data collection launch programming.
Conclusions (cont.)

4. What impact will doing DQFU on a continual basis, starting earlier in the collection schedule, have on project planning and resources (cont.)?

- Starting DQFU sooner and conducting it over a longer period of time did allow for fewer staff, which
  - Decreased training hours
  - Decreased management time associated with staff count
  - Allowed for increased knowledge and experience among team

- Conversely, a longer DQFU production period did require
  - Increased number of staff meetings (usually 1/week)
  - Increased subtask management time
Contact

delivering the promise of science for global good

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Supplemental Slide (for Q&A)
## Historical DQFU – Number and Percent of Responders

<table>
<thead>
<tr>
<th>Scope of Traditional Data Quality Follow-Up (DQFU)*</th>
<th>RY2012 ~</th>
<th>RY2013 ^</th>
<th>RY2014</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Responding Agencies</td>
<td>2,720</td>
<td>2,724</td>
<td>2,771</td>
</tr>
<tr>
<td># of Agencies At Start of DQFU</td>
<td>655</td>
<td>1,434</td>
<td>1,072</td>
</tr>
<tr>
<td>% of Agencies At Start of DQFU</td>
<td>24%</td>
<td>53%</td>
<td>39%</td>
</tr>
</tbody>
</table>

* As of June, which is typically the start date of DQFU.
~ RY2012 DQ machine edits involved less year-to-year comparing of data.
^ RY2013 combined MCI/DCRP and the Census of Jails, which increased the number of forms and variables per form being requested.