

*Ohio Mental Health Consumer Outcomes System  
Data Flow Guide*



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## ***Introduction***

The guidelines described in this document are intended to aid Boards and Providers in the successful implementation and maintenance of data flow processes related to Ohio's Mental Health Consumer Outcomes System. Please note that for the purposes of this document, Board refers to the individual Board or Board consortium that is designated to submit Outcomes data to ODMH. Comments or questions regarding this document should be directed to the ODMH Outcomes Support Team via phone (614-644-7840) or e-mail ([outcome@mhmail.mh.state.oh.us](mailto:outcome@mhmail.mh.state.oh.us)).

## ***Data Flow Process Overview***

The Outcomes data flow process is designed to support the collection, storage, and use of Outcomes data within the mental health system. Generally, the data flow process involves collecting Outcomes data from clients, family members and staff at the Provider level at regular intervals and transmitting the data through Boards to a statewide database maintained by ODMH. Throughout the process, various validation checks are performed to ensure that the data meet certain quality standards before being added to the statewide Outcomes database.

## ***Preparing for Outcomes Data Flow***

### Examine existing products

Various products have been developed to aid local systems in their implementation efforts. These products are posted on the ODMH Outcomes Web site located at:

<http://www.mh.state.oh.us/initiatives/outcomes/outcomes.html>

Specifically, the Outcomes Procedural Manual contains specific information about Ohio's Outcomes System including information about the instruments, administration intervals and protocol, instrument scoring, and data flow basics. In addition to the Manual, the Implementation Planning Checklist may be particularly helpful in guiding local systems through some of the decisions that need to be considered when implementing the Ohio Mental Health Consumer Outcomes System and developing a local data flow process. The Checklist includes both Board and Provider activities and is based on the experiences of local areas that have already implemented the Outcomes System.

### Select & implement technology

Some of the most important decisions that need to be made revolve around the type of technologies used by Providers and the Board. A Board and its Providers need to select and implement the technology they intend to use to capture and transmit the Outcomes data. Several vendor options are posted on the Outcomes Web site. In order to support data flow at the Provider level, ODMH has developed a Data Entry & Reports Template that is available to Providers free of charge. The Template is a Microsoft Access application that can be used to enter and store Outcomes data in a database, generate reports for use with individual clients, and prepare data for export to a Board. For more information on the Template, please refer to the Outcomes Web site or contact the ODMH Outcomes Support Team.

### Integrate Outcomes into existing processes

When considering the design of your local data flow system, it is strongly suggested that the Outcomes data follow the same data flow process as Claims data. In other words, a Provider that is ready to implement the Outcomes System should work with the same Board that is receiving that Provider's Claims data. This approach should reduce the amount of confusion around the transfer of files because the procedures and relationships among the technical staffs should already be established. In addition, the same file transfer process used for Claims data is used for Outcomes data.

### Assign Staff Responsibilities

Each Provider should already have an assigned staff person responsible for creating and transmitting claim files to a Board, and each Board should already have an assigned staff person responsible for receiving Provider claim files and submitting them to MACSIS. Since the Outcomes data transmission process should be similar to the Claims process, similar type of staff are needed for transmitting Outcomes files. At the Board level, the person assigned to transmit Outcomes files must be familiar with basic Unix commands and the file transfer protocol (FTP).

# ***Creating Outcomes Records & Files According to ODMH Specifications***

## Database Basics

With regard to the Outcomes database, a *field* is a container that stores one piece of information. Every question on each Outcomes instrument is represented in the database by a particular field. Fields are given names, can be different types (alphabetic, numeric, alphanumeric), can be different sizes, and are located in a certain position. A group of fields from a particular instrument is called a *record*, and a group of records is called a *file*.

## Data Specifications

Each instrument in Ohio's Outcomes System has its own specification - its own set of instructions of how the fields in that particular type of record should be structured and organized. The specifications for all of the Outcomes instruments are posted on the Outcomes Web site. The specifications provide information about each data element in an Outcomes record including the type of field, size of field, position of the field in the record, acceptable responses for the field, and how missing data should be handled. Every Outcomes record that a Board includes in a file submitted to ODMH must adhere to these specifications or the file will be rejected.

In addition, Outcomes records and files must adhere to the following guidelines or they will be rejected:

- All files must be in *ASCII, fixed-length (space delimited) format*.
- Names of files must be in *lower case*.
- Each file must have a *carriage return* at the end of it.
- Each record must have a *line feed marker* at the end of it.

## Required Fields

Certain fields in an Outcomes record, called required fields, are considered "mission critical" to the successful processing and storage of Outcomes data. Required fields must be complete and correct in order for records to be processed and to be allowed into the statewide Outcomes database. If the data in these fields are not complete and correct, a critical error (described below) occurs and the record is rejected. The required fields in the Outcomes record are listed below and are included in the data specifications.

- UCI
- UPI
- Instrument type
- Administration number
- Admission date
- Administration date
- Date of birth (not required for Adult Provider Form A)

## Key Fields

Within the group of required fields, particular fields are used to distinguish each record as being unique from all other records. Together, these fields are called a "key". If the data in these fields are not complete and correct, a critical error occurs and the record is rejected. If the data in these fields are exactly the same as the data in these fields for a record already existing in the statewide Outcomes database, the newly submitted record is considered to be a duplicate. The existing record is replaced with the duplicate record, which is assumed to contain more recent data. A count of records with duplicate keys is included at the top of the production processing report that is returned to the Board. The key fields in the Outcomes record are listed below and in the data specifications.

- UCI
- UPI
- Instrument type
- Administration number
- Admission date
- Administration date

## Warning Fields

Fields in the Outcomes record that are not required are considered "warning fields." If the data in these fields are not complete and/or correct, the record is not rejected but is entered into the statewide Outcomes database. A total count of the errors that occur in relation to warning fields is included at the top of the production processing report that is returned to Boards. Boards are expected to share this information with Providers in order to improve the quality of Outcomes data submitted in the future. Providers are not expected to correct and resubmit records containing errors in warning fields. This information is provided for QI purposes only. It is important to note, however, that although the data in warning fields are not "mission critical", analysis of statewide Outcomes data will be limited without these data.

## Subscale Scores

Each instrument contains at least one group of fields that, when examined together, form a subscale. Therefore, each Outcomes record contains one or more fields in which to store subscale scores, as indicated in the data specification for each instrument. To compute subscale scores, Providers should examine the scoring rules provided by and build these rules into the software that they use to collect and store Outcomes data. It is the responsibility of Providers to compute the correct subscale scores at the local level. When a production Outcomes record is received at ODMH, subscale scores are computed again in order to verify that they have been scored accurately. Subscale scores submitted by Providers that differ more than one-tenth (or 1 for whole number scales) from the state-generated scores will be replaced with the state-generated score in the statewide database.

When scoring items on Adult Consumer Form A, it is important to note that some of the items require reverse-scoring. For example, for most of the items on the Making Decisions Empowerment Scale, the response "Strongly disagree" is assigned a value of "1" while the response "Strongly agree" is assigned a value of "4". For reverse-scored items, "Strongly disagree" is assigned a value of "4" while "Strongly agree" is assigned a value of "1". In the data specifications, those items for which the response range is reversed are denoted by an asterisk (\*) following the name of the field.

## Batch Files

Most of the Outcomes files submitted to ODMH contain records for a particular instrument from one Provider. However, some Boards combine the records from different Providers into one file before submitting them to ODMH. This is called a *batch file*. The test and production systems at ODMH are both designed to process individual or batch files, so the decision to batch is left to a Board's discretion. It is important to note, however, that individual and batch files require different naming conventions. Also, if a Board chooses to submit a batch file, a batch production report will be returned to the Board, that is, a report containing information about records submitted by different Providers. It is the Board's responsibility to separate the results by Provider and to give feedback to each Provider included in the batch.

## Naming a File

Files must be named according to the guidelines specified by the ODMH Outcomes Team or they will be rejected. The naming conventions differ depending on whether a file is being submitted in test or production, whether it is an individual or batch file, and whether the file is being submitted for the first time or is being resubmitted.

*Test* reports have the same name as the files from which they are generated. However, instead of having a ".txt" extension like the submitted files, filenames of test reports end with ".pdf" and ".htm" extensions. Filenames for *production* reports begin with the two-digit Board Number assigned by MACSIS followed by a period, the filename originally submitted and the ".pdf" extension. Please note that reports generated from batch files will be returned as batch reports. Boards that choose to submit a batch file will receive a batch production report, that is, a report containing information about records submitted by different Providers. It is the Board's responsibility to separate the results by Provider and to give feedback to each Provider included in the batch. Files that are resubmitted after being rejected initially should be resubmitted with a different filename. If these files are submitted with the same name as the original files that were rejected, they will be treated as duplicates and will not be accepted into production.

## ***Data Flow Testing Process***

In order to be considered "live" with regard to Outcomes data flow, each Provider must successfully test and achieve "approved for production" status for the instruments it will be using. To be approved for production, an Outcomes file must pass through a series of checks without producing critical errors (defined below). Data flow testing should occur within a month of actual production so that the testing process is accomplished just prior to actual production use of the Outcomes data. Also, Outcomes test data should be as "realistic" to production data as possible. Therefore, Providers must create Outcomes test files using the technology that they will use in production and must transmit the files through the appropriate

Board to ODMH. Providers must submit test data for each instrument until they are notified that they have been approved for production for the instrument(s) tested. To the extent possible, a Provider should test all of the instruments that it will be using at the same time. Once a Provider has been approved for production with regard to a particular instrument, it does not need to submit another test file for that instrument unless there is a technology change. Files submitted for production and are not approved for production through the testing process will be rejected.

Providers should submit at least 50 records for each instrument being tested. However, the total number of records submitted by a Provider can be adjusted to reflect a more "realistic" number as to what might be actually submitted in production. Local systems should contact the ODMH Outcomes Support Team to discuss data volume issues, as too few test records will result in a rejected file. A minimum of 10 test records is required to be approved for production.

If several Providers within a Board area are using the same technology with the exact same software/programming, one Provider may submit a test file for each instrument on behalf of all the Providers in that area rather than having each Provider submit test files separately. The ODMH Outcomes Support Team must be notified when such a situation exists and must be given a list of participating Providers and the instruments they are using. Although such test waivers are allowed, they are not recommended. Each Provider is encouraged to create and submit its own Outcomes test files.

### Processing Test Files at a Board

Once a Board has received an Outcomes test file from a Provider, it should log and verify the file. Each Board is minimally responsible for the following verification procedures:

- Verifying the filename is correct and meets the detailed data specification as defined for each instrument.
- Verifying the Outcomes file is not a duplicate by comparing against those files that have been previously logged for that particular Provider.
- Examining the file with an ASCII editor to ensure that it is readable, has an appropriate end of line marker, and that there are no extra carriage returns at the end of the file.

### Submitting Test Files to ODMH

Boards are required to send Outcomes test data to the MACSIS server at ODMH for processing using file transfer protocol (FTP). In addition, each Board should use the same established MACSIS Unix account for transferring Outcomes files that it uses for Claims processing. Each Board has been assigned a unique directory structure on the MACSIS server for uploading Outcomes test files. Boards may submit Outcomes test files to ODMH at any time during any day of the week.

#### **Subdirectory where Boards should submit Outcomes test files to be processed:**

**`/county/<Board designation>/outcomes/test`**

After successfully uploading a test file to the correct directory, Boards must complete a *Data Flow Test Request Form*. All Data Flow Test Request Forms should be faxed or e-mailed to the ODMH Outcomes Support Team, 614-466-9928, [Outcome@mhmail.mh.state.oh.us](mailto:Outcome@mhmail.mh.state.oh.us). A separate form must be completed for each test of each Provider's data. Failure to complete this form will result in that particular test file not being processed.

### Critical Errors in Test Files

When an Outcomes test file is processed, an initial series of checks is performed to identify and report critical errors at the file level. If one or more critical errors are identified for a test file, the entire file is rejected. The ODMH Outcomes Support Team notifies the Board via email that the file failed the testing process and provides summary feedback as to the types of errors found. The Board is expected to report test results to Providers and inform them that they need to correct and resubmit the test file. Critical error codes for test files are listed below.

- "t" is not first letter in filename (FE010)
- instrument # is not same in filename as in file (FE020)
- Filename is not 21 characters long (FE030)
- Filename is missing .txt (FE040)
- Unknown or inappropriate submitter ID (FE050)
- Incorrect record length (FE070)
- UPID in file does not match filename UPID (FE080)
- Too many critical errors in the file (FE090)
- Duplicate file submitted (FE100)

## Critical Errors in Test Records

Once a file successfully passes checks performed at the file level, additional checks are performed to identify and report critical errors at the record level. Each record within the file is examined to ensure that the data in required fields are complete and correct. If the data successfully pass the test, the ODMH Outcomes Support Team notifies the Board via email that the Provider for which the file was submitted has been approved for production for the particular instrument tested. The Board is expected to report test results to Providers, informing them that they have been approved to submit a particular instrument for production processing. Boards and Providers can verify data flow status for a particular instrument by viewing the Data Flow Test Status Report, which is updated weekly, on the Outcomes Web site. Once a Provider is approved for production with regard to a particular instrument, it does not need to submit another test file for that instrument unless there is a technology change. Files submitted for production that are not approved through the testing process will be rejected.

If more than 10% of the records in a test file contain an UCI-DOB mismatch error, the entire file is rejected. The ODMH Outcomes Support Team notifies the Board via email that the file failed the testing process and provides summary feedback. The Board is expected to report test results to Providers and inform them that they need to correct and resubmit the test file. Critical error codes for test records are listed below.

- Invalid UCI (001)
- Invalid UPID (002)
- Invalid Administration Number (003)
- Invalid Date of Admission (004)
- Invalid Date of Administration (005)
- UCI-DOB Mismatch (006) (does not apply to Adult Provider Form A)

## Information/Verify Errors in Test Records

In addition to required fields being checked for critical errors, all of the other fields in the Outcomes record (called warning fields) are checked for incomplete and/or incorrect data. However, unlike required fields, if data in warning fields are not complete and/or correct, the record is not rejected. Instead, an information/verify error is generated and listed on the test report returned to Boards. Information/verify errors inform Boards of the extent to which data in warning fields are incomplete and/or incorrect. Boards are expected to share this information with Providers in order to improve the quality of Outcomes data submitted in the future. Providers are not expected to correct and resubmit records for which information/verify errors have been generated. The information is provided for QI purposes only. It is important to note, however, that although the data in warning fields are not "mission critical", analysis of statewide Outcomes data will be limited without these data.

## Receiving Data Flow Test Results from ODMH

Outcomes test files are processed each Monday - Thursday (with State holiday exceptions). Files in the test subdirectories are deleted after they have been tested by the ODMH Outcomes Support Team. Test files are saved for a period of 30 days and then are removed from the system.

Within one week of the date that the Data Flow Test Request Form is received by the ODMH Outcomes Support Team, a summary of test results is returned via e-mail to the Board staff person who submitted the test request. In addition, Outcomes test reports are placed in each Board's Outcomes subdirectories on the MACSIS server. Boards are responsible for retrieving these reports and communicating data flow test results to Providers.

### **Subdirectory where Boards can retrieve test reports for files without critical errors after processing:**

**/county/<Board designation>/outcomes/reports**

### **Subdirectory where Boards can retrieve test reports for files with critical errors after processing:**

**/county/<Board designation>/outcomes/rejects**

It is important to note that reports regarding rejected **test** and **production** files are posted to the same rejects subdirectory. As a result, when retrieving reports, Boards should examine the filename to determine whether they are retrieving a test or a production report. Filenames of test reports begin with a "t" and end with the ".pdf" and .htm extensions while filenames of production reports begin with the two-digit Board Number assigned by MACSIS and end with the ".pdf" extension.

NOTE: If an error message appears, "File is damaged but being repaired," when opening the reports in .pdf format, save the file. Close the file and then re-open it. The error message should not appear again. If an error message appears, "File is

damaged and could not be repaired," verify that Version 4.05 of Adobe Acrobat Reader is being used to read the files. This error does not occur if the correct version is used.

## ***Data Flow Production Process***

### Submitting Production Files to a Board

The frequency with which a Provider submits Outcomes production data to a Board is a local decision, although the Board must submit Outcomes data to ODMH at least once a month. The method used to transfer Outcomes data between Providers and Boards is also left to their discretion. However, to comply with current confidentiality statutes, all name-identifying information should be removed from the Outcomes records before a file is sent to a Board.

### Submitting Production Files to ODMH

Outcomes production files may be submitted at any time during any day of the week. Unlike the test process, Boards are not required to notify ODMH when production files are submitted. ODMH Outcomes Production Staff retrieve submitted files each Monday (or next business day in case of a holiday). Once retrieved successfully, all production files in the Board's input folder are deleted. This is necessary so that the Outcomes production files do not get reprocessed.

Boards must send Outcomes data to ODMH using file transfer protocol (FTP). In addition, each Board has an established MACSIS Unix account that it uses for Claims processing. This same account should be used for transferring Outcomes files. Each Board has been assigned a unique directory structure on the MACSIS server for uploading Outcomes files.

#### **Subdirectory where Boards should submit Outcomes production files to be processed:**

***/county/<Board designation>/outcomes/input***

### Critical Errors in Production Files

When an Outcomes production file is processed, an initial series of checks is performed to identify and report critical errors at the file level. If one or more critical errors are identified for a production file, the entire file is rejected. In addition, if the number of records containing critical errors exceeds a certain threshold, the entire file is also rejected. Currently, the critical error threshold is determined by ODMH Outcomes Production Staff on a file-by-file basis after careful review of the production processing results. As the Outcomes System matures, a standard threshold based on number of records with critical errors as well as percent of records with critical errors may be established. After critical errors are identified, the ODMH Outcomes Support Team notifies the Board via email that the file was rejected in production. The Board is expected to retrieve production reports from their designated Outcomes subdirectories on the MACSIS server and report production results to Providers. Providers should be informed when they need to correct and resubmit the production file. Files that are resubmitted by a Board to ODMH after being rejected initially should be resubmitted with a different filename. If these files are submitted with the same name as the rejected files, they will be treated as duplicates and will not be accepted into production. Critical error codes for production files are listed below.

- "h" is not first letter in filename (FE010)
- Instrument # is not same in filename as in file (FE020)
- Filename is not 21 characters long (FE030)
- Filename is missing .txt (FE040)
- Unknown or inappropriate submitter ID (FE050)
- Provider/instrument not cleared for production (FE060)
- Incorrect record length (FE070)
- UPID in file does not match filename UPID (FE080)
- Too many critical errors in the file (FE090)

### Critical Errors in Production Records

Once a file successfully passes checks performed at the file level, additional checks are performed to identify and report critical errors at the record level. Each record within the file is examined to ensure that the data in required fields are complete and correct. Individual records containing one or more critical errors are rejected while records without critical errors enter into the statewide Outcomes database. Boards are expected to retrieve production reports from their designated Outcomes subdirectories on the MACSIS server and to report production results to Providers. Providers should be informed that they must correct and resubmit the records with critical errors if they want these records to be included in analyses of the statewide Outcomes database. Critical error codes for production records are listed below.

- Invalid UCI (001)
- Invalid UPID (002)
- Invalid Administration Number (003)
- Invalid Admission Date (004)
- Invalid Administration Date (005)
- UCI-DOB Mismatch (006)

#### Information/Verify Errors in Production Records

In addition to required fields being checked for critical errors, all of the other fields (called warning fields) are also checked for incomplete and/or incorrect data. However, unlike required fields, if data in warning fields are not complete and/or correct, the record is not rejected but is entered into the statewide Outcomes database. A total count of the errors that occur in relation to warning fields is included at the top of the production processing report that is returned to Boards. Boards should share information about these errors with Providers in order to improve the quality of Outcomes data submitted in the future. Providers are not expected to correct and resubmit records for which information/verify errors have been generated. The information is provided for QI purposes only. It is important to note, however, that although the data in warning fields are not "mission critical", analysis of statewide Outcomes data will be limited without these data.

An additional duplicate check is performed for the "key" fields in the Outcomes record. As mentioned previously, within the group of required fields, particular fields are used to distinguish each record as being unique from all other records. Together, these fields are called a "key". If the data in these fields are exactly the same for two records within the same file or for a record already existing in the statewide Outcomes database, the newly submitted record is considered to be a duplicate. The existing record is replaced with the duplicate record. A total count of the number of records with duplicate keys is included in the production processing reports that are returned to Boards.

In addition, the Primary Diagnosis, Age, and Refusal type fields are evaluated during production processing. Specifically, the Primary Diagnosis field must contain a valid DSM-III-R, DSM-IV, or ICD-9 diagnosis code or an information error will be generated. Similarly, an information error will be generated if the client's age at the time of administration is outside the allowable age range for the completed instrument. An information error will also be generated if agency staff enter a value other than "3 – Person Completed" in the Refusal Type field on Adult Provider Form A or the Ohio Scales – Agency Worker Form. Verifying the values in these fields during production processing helps to ensure the quality of the data in the statewide database.

Outcomes subscale scores are also verified during production processing. It is the responsibility of Providers to compute the correct subscale scores at the local level. When a production Outcomes record is received at ODMH, subscale scores are computed again in order to verify that they have been scored accurately. Subscale scores submitted by Providers that differ more than one-tenth (or 1 for whole number scales) from the state-generated scores are replaced with the state-generated score in the statewide database. Information regarding subscale score errors is not currently included in the production report returned to Boards but may be provided in the future.

#### Receiving Production Results from ODMH

Outcomes production files are processed each Monday (or next business day following a holiday) and reports are distributed on Tuesday morning by 10:00am (or next business day following a holiday). Boards are notified via e-mail when the reports are available. Boards are responsible for retrieving these reports and communicating production processing results to Providers.

**Subdirectory where Boards can retrieve production reports without critical errors after processing:**

**`/county/<Board designation>/outcomes/reports`**

**Subdirectory where Boards can retrieve production reports with critical errors after processing:**

**`/county/<Board designation>/outcomes/rejects`**

Please note that **test** and **production** reports are posted to the same rejects subdirectory. When retrieving reports, Boards should examine the filename to determine whether they are retrieving a test or a production report. Filenames of test reports begin with a "t" and end with the ".pdf" and ".htm" extensions while filenames of production reports begin with an "h" and end with the ".pdf" extension. Production reports are only being returned to Boards in .pdf format.

## ***Problem Resolution***

For help in identifying and resolving data flow issues, please contact the Outcomes Support Team at 614-644-7840 or via e-mail at [outcome@mh.state.oh.us](mailto:outcome@mh.state.oh.us). Boards and Providers are encouraged to work together in identifying and solving data flow issues at the local level.