New! Enhanced FAERS searching in PharmaPendium
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Select the type of search you would like to do

**NEW – choose this search to:**
- Compare and visualize AEs reported for a drug or group of drugs
- Build your own drug groups (e.g., with/without a drug, by role [primary vs secondary suspect], etc.)
- Apply filters (e.g., reporter occupation) to compare AEs reported for a drug/drug group

**Choose this search to:**
- Look for AEs reported for a drug, drug class or by indication and to access FAERS reports directly
- Search for reports of drugs in any role
- Filter for co-medications of interest
- Apply filters (e.g., seriousness of outcome, age and date) to narrow down results
- See details from reports in tabular form and export results for further analysis
Building searches – Starting with a drug of interest
Summary table/graphical view
(Comparative FAERS searching)
Select drugs of interest

Summary Table and Graphical View

- Select drugs of interest
- Select adverse effects (AEs) of interest

Start

This new search type enables more advanced queries of FAERS reports.

Options include viewing FAERS reports:
- Based on a group of drugs (applying logic operators AND/OR/NOT)
- With comparative view of drugs in a summary table (e.g., view FAERS reports for a drug versus another drug)
- With a graphical representation of the FAERS reports
- All types of searches include advanced filtering options (e.g., by reporter occupation, age, gender, etc.)

Direct FAERS search

Start

Retrieve information on drugs and adverse events from FAERS reports and filter results by drug role, serious vs not serious outcome, type of adverse event and age/gender of patient. Use this page to directly accessing the FAERS reports from a simple query.

Example searches include:
- “Show me all FAERS reports where my drug has been reported”
- “Show me all reports where my drug is reported as a primary and secondary suspect drug”
- “Show me all reports where patients are taking only my drug of interest with no other co-medications”

Watch tutorial for a quick tour!
Select ‘Add Drugs’

The initial page shown is the **Summary Table** for Adverse Events. Add drugs or build drug groups to populate the table by selecting **Add Drugs**.
Add drugs

Type in the name of the drug and select from the drop-down menu or expand the drug taxonomy to find the drug/drug class of interest. You can also search by target/target class or indication to add drugs that act on specific targets/indications.
A) Select individual drugs/classes or B) create drug groups

A) To **view results for individual drugs**, select a drug/drug class (or target/target class or indication) from the left-hand side of the page to add it to the list on the right hand side and (optional) select specific drug roles to assess (i.e., primary, secondary, concomitant or interacting). See slides 10 – 16 for more information.

B) To **build drug groups**, turn on the logic operators. Combine drugs using the **AND**, **OR** or **NOT** logic operators. See slides 17 – 24 for more information.
A) Build a search for individual drugs/classes

Select the drug(s) to view in the Summary Table (indicating drug role if desired). Each drug/drug class will be added as a separate column on the table. Once all drugs are added to the list on the right-hand side of the page, select Add column to view the summary table.

NOTE: AEs reported for each drug/drug class in this list will be shown in separate columns in the Summary Table.

In this example, drugs within the same drug class will be shown in separate columns to easily compare the AEs reported for a drug to its drug class.
A) Select individual drugs/classes

Click here to view AEs by name. By default, they are grouped by the affected area (e.g., cardiac disorder).

Data can be displayed as 1) Total # of records 2) Total # records and % of total # of records or 3) % of the total # of records.

Expand the AE category to see individual AEs.
A) Select individual drugs/classes

Heatmap gradation ranges and colours are set by default. Click 'Edit Ranges' and deselect the 'Lock ranges (auto calculation) button to change default values. Heatmap colours can also be selected.
Use filters to compare AEs

Click to add the filter set, and select one or more parameters to filter the search. Multiple filter sets can be applied and the number of AEs found for each drug once the filter is applied will be shown (see next slide).
See differences in AE reports by applying filters

Click here to hide filter details

Results can be saved and exported

Click on the number of AEs to see underlying data
View, filter, save and export report-level information

Details of the search and previously applied filters are shown here.

Apply additional filters to the results set. Previously applied filters can be edited.

Results can be saved and exported (users must log-in to save searches)
Apply filters to further refine search results
View a graph of results for easy visual comparison

Filters can also be applied to the graph view

View total # of records or Percentages

Click on the 'i' to see drug role

Click on a bar to drill down further into the data
Quickly drill-down further into the data

Filters are described

Continue clicking on bars to see details on the next level of the AE taxonomy
A) Select individual drugs/classes or **B) create drug groups**

**A)** To view results for individual drugs, select a drug/drug class (or target/target class or indication) from the left-hand side of the page to add it to the list on the right-hand side and (optional) select specific drug roles to assess (i.e., primary, secondary, concomitant or interacting). See slides 10 – 16 for more information.

Each drug/drug class added here will be shown as a separate column in the Summary Drug Table. AE’s are compared between columns.

**B)** To build drug groups, turn on the logic operators. Combine drugs using the **AND, OR** or **NOT** logic operators. See slides 18 – 25 for more information.
B) Build drug groups to compare AEs between groups

1. Name the group
2. Add all terms to be included in the group using the AND Logic operator (i.e., term 1 AND term 2 must be included).
3. Select the Logic operator “NOT”
4. Add all terms to be excluded from the results (the NOT Logic operator is applied to all terms).
5. Similarly, you can add terms to the group using the OR Logic operator (i.e., term 1 OR term 2 can be included in the result).

In this example, we are creating a drug group that contains drugs that are part of the Analgesics, non-narcotic drug class but NOT drugs in the Analgesics, narcotic drug class. It will be compared to a drug group that contains drugs that are part of the Analgesics, non-narcotic drug class AND drugs in the Analgesics, narcotic drug class (see slide 20).
Add groups one at a time to compare Adverse Events

These are the AEs for the Analgesics non-narcotic NOT narcotic group. To compare with a second group, select Add Drugs. Continue this process until all groups are added.

You can display data by total # of results, Results and Percentages or just Percentages
Add additional comparative groups

Activate Logic operators to create a group of drugs. Otherwise, each drug/drug class will be added as a separate column.

Name the drug group

In this example, we are creating a drug group that contains both drugs that are part of the Analgesics, non-narcotic drug class AND drugs in the Analgesics, narcotic drug class.

Results from this group will contain AE reports for Analgesics, narcotic AND Analgesics, non-narcotic

Each drug group is shown in a separate column in the Summary Table. It is possible to view a combination of drug/drug classes and drug groups on the table.

Select the drugs to add to the group. The logic operator AND is automatically applied to drugs unless otherwise selected (by applying the Logic operators). Select Add Group to see results on the Summary Table.
Filter sets can be applied to groups for additional comparisons

Apply filters to compare AEs reported for different patient demographics, outcomes, reporter occupation or routes of administration.

Filter #0 = unfiltered (original) data. Click Edit to apply filters to this data set or leave as-is to keep the column of data in its original (unfiltered) form.

Click to hide filters

Click on the number of AEs to see underlying data
View, filter, save and export report-level information

Details of the search and previously applied filters are shown here.

Results can be saved and exported (users must log-in to save searches)

Apply additional filters to the results set. Previously applied filters can be edited.
Editing searches and sorting results

The drop-down menu from each drug or group of drugs lets you delete or edit searches and also to sort Adverse Events by frequency.

The edit option brings you back to the search-building page. Once you have completed editing, press Save.
View a graph of results for easy visual comparison

Results from the Summary Table can be viewed in Graph form.

Filters can also be applied to the Graph – all filters applied to the Summary Table will be shown on the Graph (and vice-versa).

Click on a bar to drill down further into the data.
Quickly drill-down further into the data

Continue clicking on bars to see details on the next level of the AE taxonomy
Building searches – Starting with the AE of interest
Summary table/graphical view (Comparative FAERS searching)

Note – for complete description of functions, refer to slides 11-18
Start your search by selecting AEs of interest

Summary Table and Graphical View

- Select adverse effects (AEs) of interest

Start

Direct FAERS search

Retrieve information on drugs and adverse events from FAERS reports and filter results by drug role, serious vs not serious outcome, type of adverse event and age/gender of patient. Use this page to directly accessing the FAERS reports from a simple query.

Example searches include:
- “Show me all FAERS reports where my drug has been reported”
- “Show me all reports where my drug is reported as a primary and secondary suspect drug”
- “Show me all reports where patients are taking only my drug of interest with no other co-medications”

Watch tutorial for a quick tour!
Select ‘Add AEs’

The initial page shown is the **Summary Table** for Drugs. Add AEs or build AE groups to populate the table by selecting **Add AEs**.
Type in the name of the AE and select from the drop-down list or expand the AE tree to find the AE of interest. You can add the AE class (e.g., cardiac disorders) or narrow down further to a specific AE.
A) Select individual adverse events or B) create AE groups

A) To view results for adverse events, select the adverse event (or AE class) from the left-hand side of the page to add it to the list on the right hand side. See slides 31 – 36 for more information.

B) To build AE groups, turn on the logic operators. Combine AEs using the AND, OR or NOT logic operators. See slides 36 – 43 for more information.
A) Build a search for individual AEs

Select the AE(s) to view in the Summary Drug Table. Each AE will be added as a separate column on the table. Once all AEs are added to the list on the right-hand side of the page, select ‘Add column’ to view the summary table.

NOTE: Each AE will be shown in a separate column, with the number of reports per drug/drug class indicated.
A) View results for individual AE searches

- Select Compare Filters to further refine results
- Click here to view AEs by name. By default, they are grouped by the affected area (e.g., cardiac disorder)
- Expand the drug class to see results for individual drugs

Data can be displayed as 1) Total # of records 2) Total # records and % of total # of records or 3) % of the total # of records
Set heatmap ranges

Heatmap gradation ranges and colours are set by default. Click ‘Edit Ranges’ and deselect the ‘Lock ranges (auto calculation)’ button to change default values. Heatmap colours can also be selected.
Use filters to identify differences in drugs reported for a specific AE according to demographics, outcome, etc.
Use filters to identify differences in drugs reported for a specific AE according to demographics, outcome, etc.

Click on the number of AEs to see underlying data (see next slide)

Results can be saved and exported

Click to hide filters
View, filter, save and export report-level information

Details of the search and previously applied filters are shown here.

Apply additional filters to the results set. Previously applied filters can be edited.

Results can be saved and exported (users must log-in to save searches)
View a graph of results for easy visual comparison

Results from the Summary Table can be viewed in Graph form. Filters can also be applied to the Graph – all filters applied to the Summary Table will be shown on the Graph (and vice-versa).
A) Select individual adverse events or B) create AE groups

A) To **view results for adverse events**, select the adverse event (or AE class) from the left-hand side of the page to add it to the list on the right hand side. See slides 31-36 for more information.

B) To **build AE groups**, turn on the logic operators. Combine AEs using the **AND**, **OR** or **NOT** logic operators. See slides 38 – 46 for more information.
B) Build AE groups to compare drugs reported for a specific between groups

1. Name the group
2. Add all terms to be included in the group using the AND Logic operator (i.e., term 1 AND term 2 must be included).
3. Select the Logic operator “NOT”
4. Add all terms to be excluded from the results (the NOT Logic operator is applied to all terms)
5. Similarly, you can add terms to the group using the OR Logic operator (i.e., term 1 OR term 2 can be included in the result)

Name the group and select the AEs to add to the group. The logic operator AND is automatically applied to drugs unless otherwise selected (by applying the Logic operators OR or NOT). Select Add Group to see results on the Summary Drug Table.
Add groups one at a time to compare drugs reported for each AE group

These are the number of FAERS reports per drug/drug class for the AE group that was created: Eye NOT Ocular. To compare with a second group, select Add AEs. Continue this process until all groups are added.

Select Compare Filters to further refine results. Click here to view AEs by name. By default, they are grouped by the affected area (e.g., cardiac disorder).

Data can be displayed as 1) Total # of records 2) Total # records and % of total # of records or 3) % of the total # of records.
Set heatmap ranges

Heatmap gradation ranges and colours are set by default. Click 'Edit Ranges' and deselect the 'Lock ranges (auto calculation) button to change default values. Heatmap colours can also be selected.
Building searches – Direct
FAERS search
Select direct FAERS search

Summary Table and Graphical View

- Select drugs of interest
- Select adverse effects (AEs) of interest

Start

This new search type enables more advanced queries of FAERS reports.

Options include viewing FAERS reports:
- Based on a group of drugs (applying logic operators AND/OR/NOT)
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- With a graphical representation of the FAERS reports.
- All types of searches include advanced filtering options (e.g., by reporter occupation, age, gender, etc.)

Direct FAERS search

Start

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Example searches include:
“Show me all FAERS reports where my drug has been reported”
“Show me all reports where my drug is reported as a primary and secondary suspect drug”
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Watch tutorial for a quick tour!

Look for AEs reported for a drug, drug class or by indication and access FAERS reports
Input search parameters and limits

Search for FAERS reports by drug/drug class, target/target class or indication

(Optional) Limit search results to specific AEs

(Optional) Limit search to drugs reported in a specific role (Primary or Secondary Suspect Drug, Concomitant or Interacting)

(Optional) Apply additional filters (Date range, Age range, Gender or Outcome)
View and refine search results

Results include information on several parameters
Apply filters to further refine search results
E.g., apply the ‘Drugs by Role’ filter to search for reports where Amphetamines were the only administered drug.

Primary Suspect Drug shows a list of Amphetamines reported as the Primary Suspect Drug in the FAERS reports (only Amphetamines are shown as this was the initial search criteria).

Under Secondary Suspect Drug, Concomitant (not shown here) and Interacting (not shown here), select ‘No drugs reported’.
Further refine results, export and save data

- Click on blue links to see individual FAERS reports
- Apply additional filters to further refine results
- Results can be saved and exported (users must log-in to save searches)
Exporting results
Exporting results

Exported graphical data can include top level results as well as a more detailed graph (i.e., summary of reports by AE class and details of a specific drug/AE which you accessed by clicking on the chart to drill-down further into the data).
Working with exported data

Enable editing and click on the '+' to expand a drug class. Click on the '-' sign to collapse it.

<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Total</th>
<th>1 - 16084</th>
<th>0.00% - 18.58%</th>
<th>0 - 16144</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-alpha-reductase inhibitors</td>
<td>429</td>
<td>437</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Abortifacients</td>
<td>55</td>
<td>55</td>
<td>0.06%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Acidifiers, urinary</td>
<td>4</td>
<td>4</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Adrenergic agonists</td>
<td>6769</td>
<td>6881</td>
<td>7.82%</td>
<td>7.22%</td>
</tr>
<tr>
<td>Aldose reductase inhibitors</td>
<td>4</td>
<td>4</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Alkalizing agents</td>
<td>159</td>
<td>160</td>
<td>0.16%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Allergenic extracts</td>
<td>16</td>
<td>16</td>
<td>0.02%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Alpha-glucosidase inhibitors</td>
<td>62</td>
<td>62</td>
<td>0.07%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Amino acids and derivatives</td>
<td>31</td>
<td>32</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Antihistamines</td>
<td>625</td>
<td>640</td>
<td>0.72%</td>
<td>0.07%</td>
</tr>
<tr>
<td>Antihistaminic agents</td>
<td>10</td>
<td>10</td>
<td>0.01%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Antiinflammatory steroids</td>
<td>0</td>
<td>0</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Analgesics</td>
<td>489</td>
<td>506</td>
<td>0.56%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Analgesics</td>
<td>13886</td>
<td>14118</td>
<td>16.04%</td>
<td>15.27%</td>
</tr>
<tr>
<td>Antidepressants</td>
<td>208</td>
<td>281</td>
<td>0.33%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Antidiabetics</td>
<td>1283</td>
<td>1305</td>
<td>1.48%</td>
<td>1.17%</td>
</tr>
<tr>
<td>Angiotensin II receptor antagonists</td>
<td>4243</td>
<td>4303</td>
<td>4.90%</td>
<td>4.90%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Total</th>
<th>1 - 16084</th>
<th>0.00% - 18.58%</th>
<th>0 - 16144</th>
</tr>
</thead>
<tbody>
<tr>
<td>75 Alkalizing agents</td>
<td>159</td>
<td>162</td>
<td>0.16%</td>
<td>0.02%</td>
</tr>
<tr>
<td>85 Allergenic extracts</td>
<td>16</td>
<td>16</td>
<td>0.02%</td>
<td>0.00%</td>
</tr>
<tr>
<td>86 Mixed Pollen Allergen Extract</td>
<td>3</td>
<td>3</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>87 Short Reswed Pollen Allergen Extract</td>
<td>2</td>
<td>2</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>88 Timothy Grass Pollen Allergen Extract</td>
<td>11</td>
<td>11</td>
<td>0.01%</td>
<td>0.00%</td>
</tr>
<tr>
<td>89 Alpha-glucosidase inhibitors</td>
<td>62</td>
<td>62</td>
<td>0.07%</td>
<td>0.00%</td>
</tr>
</tbody>
</table>
Exported data includes 5 types of information:

1. The summary table with heatmap;
2. Filters that were applied;
3. Search criteria for each column;
4. The top level chart (graph);
5. A chart showing data for a specific drug/AE.