

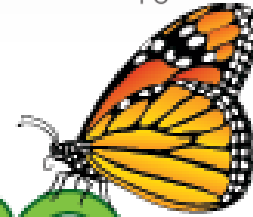


U.S. Department of Health and Human Services



Agency for Healthcare Research and Quality

Advancing Excellence in Health Care • [www.ahrq.gov](http://www.ahrq.gov)



**MONAHRQ**

**Input Your Data. Output Your Website.**

# **MONAHRQ Open Source Framework**

## **June 18, 2015**



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# Welcome and Introductions



# Agenda

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1. Introductions
2. Brief Overview of MONAHRQ®
3. New Feature of MONAHRQ: Open Source Framework
4. Who Can Use Open Source Framework
5. Wings and Flutters
6. Resources
7. Licensing
8. Wrap-up and Questions



# What is MONAHRQ?

- MONAHRQ is Windows-based software from AHRQ to help you and your organization create your own web-based, health care quality and utilization reports.
- MONAHRQ was created to help increase transparency in US health care by spreading the use of evidence-based features and metrics that allow for more informed decision-making by consumers and health care professionals that can lead to higher quality care and potentially lower care costs.
- MONAHRQ is:
  - **Evidence-based** – uses measures, data sources, and reporting techniques drawn from research
  - **Quick** – generates reports and websites in hours or days, not months
  - **Easy** – designed to be intuitive, so no training is needed to use it
  - **Flexible** – allows customization, ensuring that the reports are relevant to your needs
  - **Free** – provided by AHRQ at no cost to anyone who wants to produce health care websites and reports
- MONAHRQ 6.0 is the latest version with new report on nursing homes, physician, and trends.



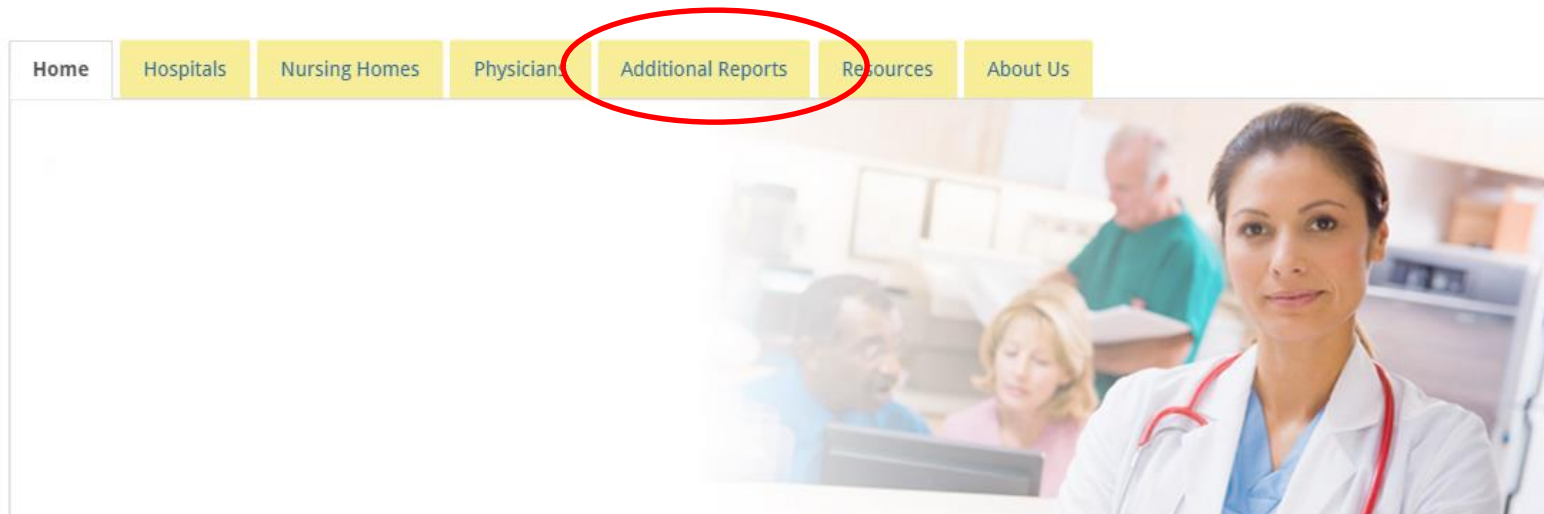
# Open Source Framework: A New Feature of MONAHRQ

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- **New Open Source Framework in MONAHRQ 6.0:**
  - ▶ Enables Host Users to:
    - add one or more new datasets similar to existing ones,
    - define measures and report types,
    - customized report layouts in MONAHRQ-generated websites
  - ▶ Extends the MONAHRQ application
  - ▶ Enables greater flexibility and innovation
- **There are two main framework components:**
  - ▶ Wings
  - ▶ Flutters



# Open Source Framework: A New Feature of MONAHRQ



The screenshot shows the top navigation bar of the MONAHRQ website. The menu items are: Home, Hospitals, Nursing Homes, Physicians, Additional Reports, Resources, and About Us. The 'Additional Reports' item is circled in red. Below the navigation bar is a large image of a female doctor in a white lab coat with a stethoscope, looking towards the camera. In the background, other medical staff are visible in a clinical setting.

## Get Started

This website provides information on the quality of all the hospitals and nursing homes in the state. It also provides basic information on all the physicians. You can limit what you look at by narrowing your search to the things that mean the most to you:



# Who Can Use the Open Source Framework?

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- Host Users who have experience with software development or basic programming skills
- Host Users working with IT professionals and web developers to plug-in additional datasets and measures and create new report types



# What Are Some Examples of Wings?

Monahrq - Input your data. Output your website. Welcome | Session Log | About | Help

Database Connection | Other Connections | **Manage Wings & Flutters**

## Manage Wings & Flutters

**Wings** | Flutters | Insert a new open source Wing and/or manage already installed Wings. [INSTALL NEW WING](#)

	Display Name	Publisher	Publisher Email	Publisher Website
	APCD Data	Pantheon	monahrq-support@pant...	
	HCUP County Hospital Stays Data	Pantheon	monahrq-support@pant...	
	Health Insurance Exchange Quality Reporting	Pantheon	monahrq-support@pant...	
	Hospital Value-Based Purchasing	Pantheon	monahrq-support@pant...	

[CLOSE](#)

Libraries  
DATA SETS  
MEASURES  
REPORTS  
WEBSITES  
SETTINGS  
AHRQ  
Monahrq






# What Does a Wing Look Like?

At a high level, your Wing will look like this:

```
<Target>
  <Columns /> <!-- columns' definition in your dataset-->
  <Measures /> <!--Measure' name and definition included on your dataset for reporting >
  <Reports /> <!--Reports definition and report generator associated with Wing-->
</Target>
```

Wing defining data columns		Data file																																																																																																																																																																																									
<pre>&lt;Columns&gt;   &lt;Column Name="county_fips" DataType="String"   Description="The County FIPS" IsRequired="true" /&gt;   &lt;Column Name="local_hospital_id" DataType="String"   Description="The Local Hospital Id" IsRequired="true" /&gt;   &lt;Column Name="state" DataType="String" Description="State" IsRequired="true" /&gt;   &lt;Column Name="total_number_of_discharges" DataType="Decimal" Scale="7" Description="Total Number Of Discharges" IsRequired="false" /&gt;   &lt;Column Name="discharge_rate_100k_population" DataType="Decimal" Scale="5" Description="Rate of discharges per 100,000 population" IsRequired="false" /&gt;   &lt;Column Name="mean_los" DataType="Decimal" Scale="9" Description="Mean length of stay, days" IsRequired="false" /&gt;   &lt;Column Name="numb_of_days_in_hospital" DataType="Decimal" Scale="4" Description="Aggregate number of days in the hospital" IsRequired="false" /&gt; &lt;/Columns&gt;</pre>		<table border="1"> <thead> <tr> <th>county_fips</th> <th>local_hospital_id</th> <th>state</th> <th>total_number_of_discharges</th> <th>discharge_rate_100k_population</th> <th>mean_los</th> <th>numb_of_days_in_hospital</th> <th>numb_inpatient_days_10OK_population</th> <th>mean_costs_all_hospitals</th> <th>agg_cost_per_stay</th> <th>costs_inpatient_per_stay</th> </tr> </thead> <tbody> <tr><td>50001</td><td>122536</td><td>VT</td><td>330.5454545</td><td>14320.7115</td><td>4.84802</td><td>88137</td><td>1262.31078</td><td>11352.7</td><td>2.1E+08</td><td>1625.7912</td></tr> <tr><td>50001</td><td>122537</td><td>VT</td><td>1404.363636</td><td>14248.5828</td><td>4.75285</td><td>367110</td><td>1231.29755</td><td>9995.6</td><td>7.7E+08</td><td>1424.2317</td></tr> <tr><td>50003</td><td>122538</td><td>VT</td><td>38.8</td><td>13365.0655</td><td>4.62933</td><td>9879</td><td>1124.93381</td><td>14029.3</td><td>3E+07</td><td>1875.0187</td></tr> 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		county_fips	local_hospital_id	state	total_number_of_discharges	discharge_rate_100k_population	mean_los	numb_of_days_in_hospital	numb_inpatient_days_10OK_population	mean_costs_all_hospitals	agg_cost_per_stay	costs_inpatient_per_stay																																																																																																																																																																															
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# What Does a Wing Look Like?

## Report Generator

<ReportOutputSQL>

```

<![CDATA[
;with COUNTIES_CTE (county_fips, county_name,
[total_number_of_discharges],
[discharge_rate_100k_population],
[mean_los], [numb_of_days_in_hospital],
[numb_inpatient_days_100K_population],
[mean_cost_stay], [agg_costs_all_hosp_stays],
[costs_inpatient_stays_per_capita],
[state]) as
(
SELECT DISTINCT
chs.[county_fips], c.[Name] 'county_name',
chs.[total_number_of_discharges],
chs.[discharge_rate_100k_population],

chs.[mean_los], chs.[numb_of_days_in_hospital],
chs.[numb_inpatient_days_100K_population],
,
chs.[mean_cost_stay],
chs.[agg_costs_all_hosp_stays],
chs.[costs_inpatient_stays_per_capita],
chs.[state]
FROM [dbo].[Targets_HCUPCountyHospitalStays]
chs
INNER JOIN [dbo].[Base_Counties] c ON
c.[CountyFIPS] = chs.[county_fips]

```

## MONAHRQ Generated report

Home Hospitals Nursing Homes Additional Reports Resources About Us

HCUP Hospital Stays Summary Report

HCUP County Hospital Stays Details Report

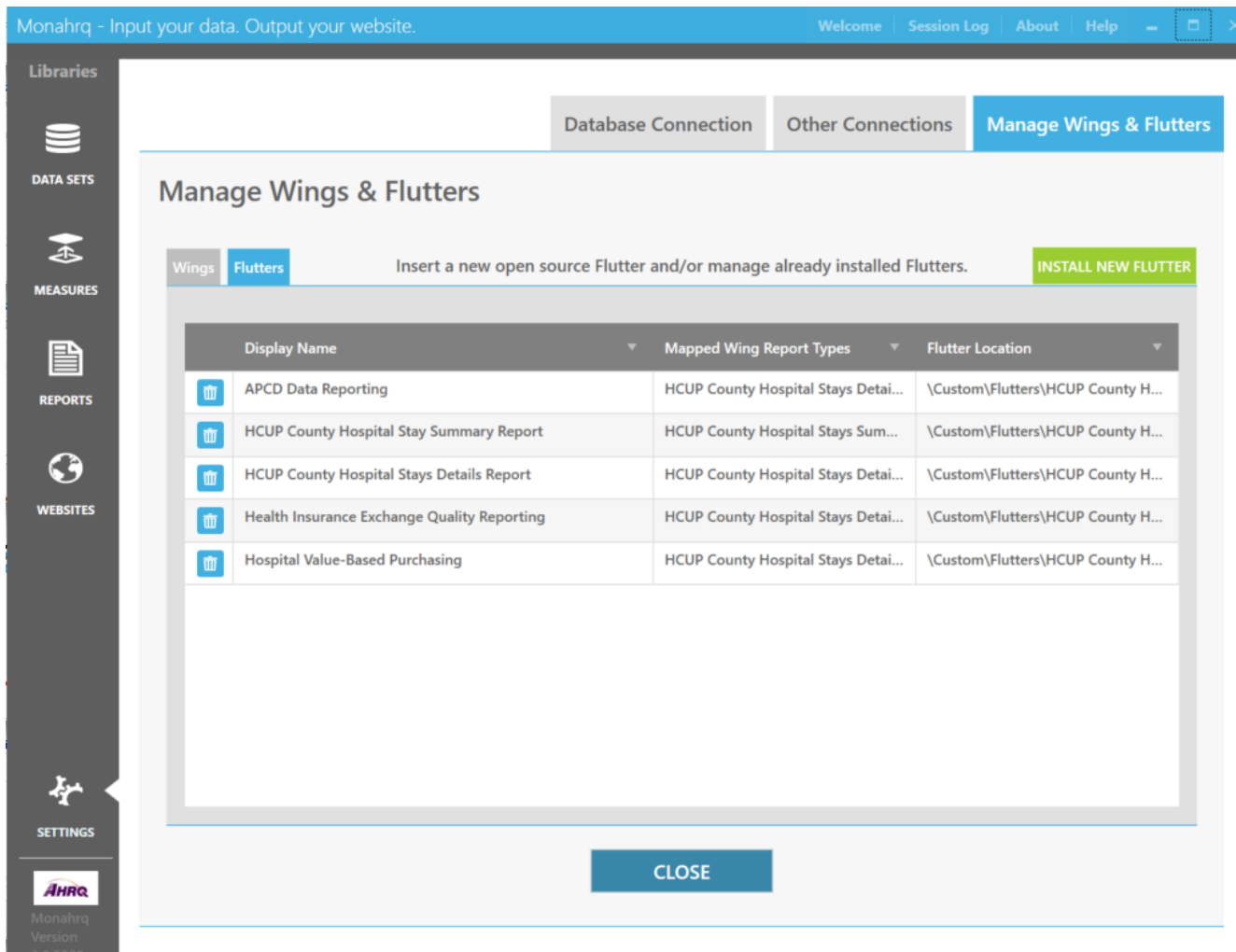
## HCUP County Hospital Stays Summary Report

This report is an example of a summary report.

County Name	Total Number of Discharges	Discharge Rate (per 100K population)	Mean Length of Stay	Number of Days in Hospital	Number of Inpatient Days(per 100K population)	Mean Cost of Stay	Aggregate Costs for All Hospital Stays	Costs for Inpatient Stays (per capita)
Search								
State Total	55,626,291	8,248.09761	4.08	34,300,699.0497	43,004.59484	\$10,492	\$83,100,451,958	\$42,255
<a href="#">Addison County</a>	2,284,073	14,099.06653	4.66	587,193.0725	3,583.97696	\$10,937	\$1,324,722,922	\$4,623
<a href="#">Bennington County</a>	1,961,073	12,348.75624	4.61	490,760.0000	3,103.13991	\$11,683	\$1,110,097,597	\$4,353
<a href="#">Caledonia County</a>	1,279,345	10,577.40483	4.59	331,152.6640	1,776.95022	\$9,765	\$660,940,202	\$2,048
<a href="#">Chittenden County</a>	5,900,345	11,575.89511	4.41	1,417,034.0000	3,703.40576	\$11,593	\$3,308,330,866	\$5,192
<a href="#">Essex County</a>	3,858,145	11,377.86980	4.41	1,207,815.1734	2,981.62695	\$10,796	\$2,909,324,141	\$3,651
<a href="#">Franklin County</a>	1,773,709	10,301.93364	4.32	1,313,931.0172	3,618.54213	\$10,807	\$3,133,764,051	\$3,223

# What are Flutters?

“Flutters” let Host Users create new report layouts, style, and flow.



Monahrq - Input your data. Output your website. Welcome | Session Log | About | Help

Database Connection | Other Connections | **Manage Wings & Flutters**

### Manage Wings & Flutters

Wings | **Flutters** | Insert a new open source Flutter and/or manage already installed Flutters. **INSTALL NEW FLUTTER**

	Display Name	Mapped Wing Report Types	Flutter Location
	APCD Data Reporting	HCUP County Hospital Stays Deta...	\Custom\Flutters\HCUP County H...
	HCUP County Hospital Stay Summary Report	HCUP County Hospital Stays Sum...	\Custom\Flutters\HCUP County H...
	HCUP County Hospital Stays Details Report	HCUP County Hospital Stays Deta...	\Custom\Flutters\HCUP County H...
	Health Insurance Exchange Quality Reporting	HCUP County Hospital Stays Deta...	\Custom\Flutters\HCUP County H...
	Hospital Value-Based Purchasing	HCUP County Hospital Stays Deta...	\Custom\Flutters\HCUP County H...

**CLOSE**

Libraries  
DATA SETS  
MEASURES  
REPORTS  
WEBSITES  
SETTINGS

**AHRQ**  
Monahrq  
Version 2.0.0.0



# What Does a Flutter Look Like?

## What do you want the report to look like?

\View\basic-table.html

```
<script type="text/ng-template" id="flutters/hcup-county-hospital-stays-summary-report/views/basic-table.html">
  <div class="BasicTableFlutter">
    <h1 class="page-title">{{page.title}}</h1>
    <div data-ng-bind-html="page.header" class="page-header"></div>
    <table data-st-table="displayModel" data-st-safe-src="model" class="table data">
      <thead>
        <tr class="column-headings">
          <th data-ng-repeat="col in table.columns" data-st-sort="{{col.name}}">{{col.label}}</th>
          <tr data-ng-if="table.hasGlobalSearch" class="global-search">
            <th colspan="{{table.columns.length}}"><input data-st-search="" class="form-control" placeholder="Search" type="text" /></th>
          </tr>
        </thead>
        <tbody>
          <tr data-ng-repeat="row in displayModel">
            <td data-ng-repeat="col in table.columns">
              <span data-ng-if="!(col.format == 'html')">{{getValue(col.name, row)}}</span>
              <span data-ng-if="col.format == 'html'" data-hcup-compile="row[col.name]" x="{{getValue(col.name, row)}}></span>
            </td>
          </tr>
        </tbody>
        <tfoot>
          <tr data-ng-if="table.hasPager" class="table-pager">
            <td colspan="{{table.columns.length}}" class="text-center">
              <div data-st-pagination="" data-st-items-by-page="itemsPerPage" data-st-displayed-pages="10"></div>
            </td>
          </tr>
        </tfoot>
      </table>
```



# What Does a Flutter Look Like?

How do you want your webpage to respond to user requests?

basic-table.js

```
* Monahrq Flutter
* HCUP County Hospital Stays Summary Report Flutter
*/
(function() {
  'use strict';

  /**
   * Angular wiring
   */
  angular.module('flutters.HCUPFlutter', ['smart-table'])
    .config(config)
    .controller('HCUPFlutterCtrl', HCUPFlutterCtrl)
    .directive('hcupCompile', HCUPCompileDirective);

  var FLUTTER_ID = 'gov.ahrq.HCUPFlutter';

  /**
   * Angular config
   * Configures the Flutter's state(s) for routing.
   */
  config.$inject = ['$stateProvider'];
  function config($stateProvider) {
    $stateProvider.state('top.flutters.HCUPFlutter', {
      url: '/basic-table?reportId&filter',
```



# How to Acquire Wings and Flutters

---

- **Host Users may acquire Wings and Flutters in a variety of ways.**  
For example:
  - ▶ Wings and Flutters included by MONAHRQ in the generated website
  - ▶ Wings and Flutters created privately by the Host User's organization
  - ▶ AHRQ community website at: <https://github.com/AHRQ/MONAHRQ-Framework>
    - A GitHub community has been created as part of the Framework dissemination and knowledge-sharing platform in the development of Wings and Flutters.
    - How to contribute to this program

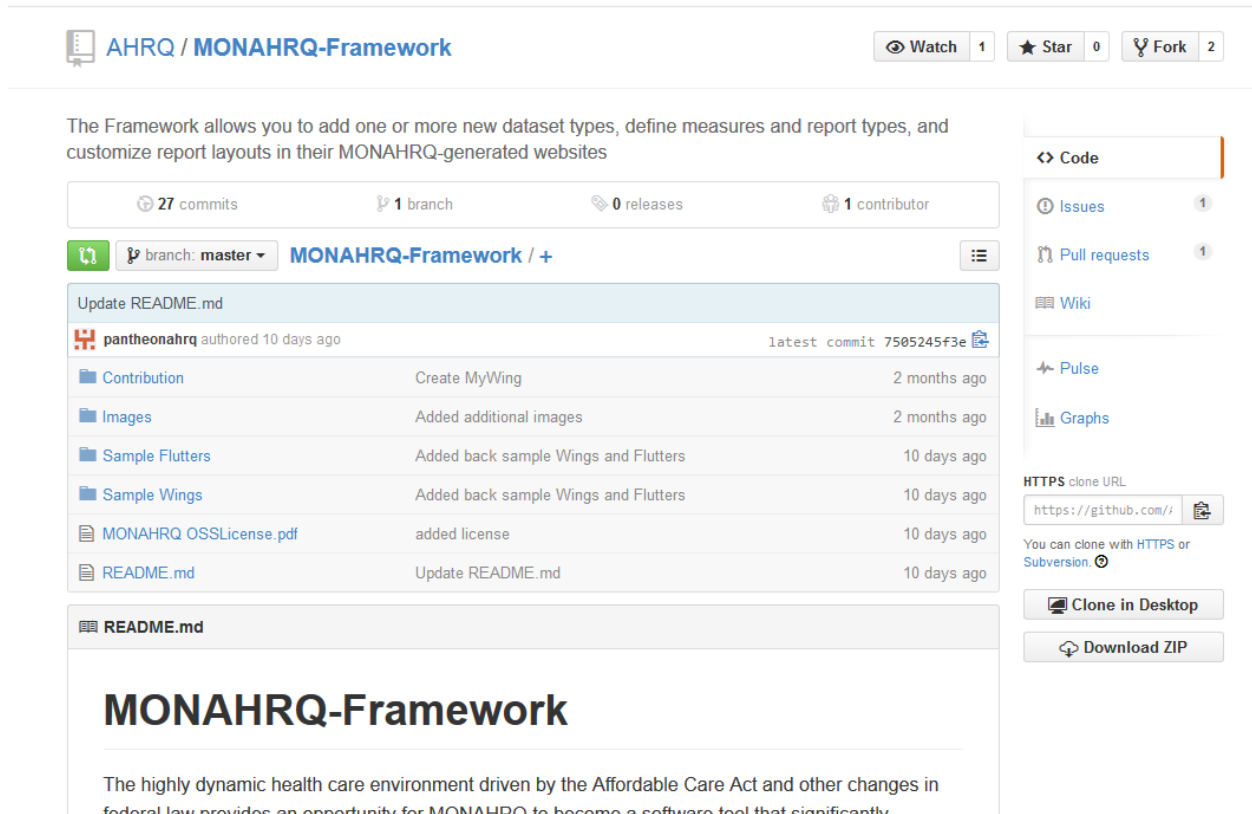


# What You Can and Cannot Do

Can Do	Cannot Do
User will be able to easily include a new datasets into MONAHRQ for existing reporting entity types (Hospitals, Nursing Homes and Physicians).	User cannot create new reporting entities (such as, Payers, Home health, etc.) with the new datasets.
The data can be imported in “.csv” (comma separated file) file format only.	The import file cannot be in a format other than .csv format.
Current validation rules are limited to data format type validations such as, numeric, date, etc.	User cannot currently create custom validation rules such as across entities and data sets and on domain values (ICD-9 codes, etc.)
The report generation process can be defined by developers using the JSON output format currently supported by MONAHRQ.	Report data cannot have a format other than JSON. For example, XML output is not supported currently in MONAHRQ Open Source

# Licensing

- Available on **GitHub**



AHRQ / **MONAHRQ-Framework** Watch 1 Star 0 Fork 2

The Framework allows you to add one or more new dataset types, define measures and report types, and customize report layouts in their MONAHRQ-generated websites

27 commits   1 branch   0 releases   1 contributor

branch: master   **MONAHRQ-Framework** / +

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Update README.md	pantheonahrq	10 days ago
Contribution	Create MyWing	2 months ago
Images	Added additional images	2 months ago
Sample Flutters	Added back sample Wings and Flutters	10 days ago
Sample Wings	Added back sample Wings and Flutters	10 days ago
MONAHRQ OSSLicense.pdf	added license	10 days ago
README.md	Update README.md	10 days ago

**README.md**

## MONAHRQ-Framework

The highly dynamic health care environment driven by the Affordable Care Act and other changes in federal law provides an opportunity for MONAHRQ to become a software tool that significantly

- <https://github.com/AHRQ/MONAHRQ-Framework/blob/master/MONAHRQ%20OSSLicense.pdf>



# Next Steps

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- **What you can do now:**
  - ▶ Download MONAHRQ 6.0 and host a MONAHRQ-generated website
  - ▶ Create a Wing and Flutter with MONAHRQ
  - ▶ Provide feedback to the MONAHRQ Team (e.g. interest in organization to create their own wing and flutter; other data that can be used to create wings and flutters)
- **What the MONAHRQ Team will do:**
  - ▶ Provide technical assistance to help you develop Wings & Flutters
  - ▶ Plan for future versions of MONAHRQ
    - More consumer oriented
    - New reporting domains
    - Methodological improvements



# Wrap-Up Questions and Answers



# Thank You

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## General Comments:

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