Regional Syndromic Surveillance Data Sharing Workshop: HHS Region 2+

Final Report
Regional Syndromic Surveillance Data Sharing Workshop:
HHS Region 2+\(^1\)

Final Report

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\(^1\) Region 2+ is a name participants and staff used to reference the workshop group. HHS Region 2 consists of New York, New Jersey, Puerto Rico, and the Virgin Islands. For the purposes of this workshop, however, states that share a geographic boundary with New York City (i.e., Pennsylvania and Connecticut) were invited to participate because a pre-existing regional surveillance group could provide an effective support for post-workshop actions. Public health officials invited from Puerto Rico and the Virgin Islands were unable to attend.
Acknowledgements

ISDS would like to thank the following people for their contributions to making the Region 2+ Syndromic Surveillance Data Sharing Workshop a success.

Workshop Participants

Hwa-Gan Chang New York State Department of Health
Jian-Hua Chen New York State Department of Health
Kevin McKay Rockland County Health Department, NY
Oscar Alleyne Rockland County Health Department, NY
Leah Lind Pennsylvania Department of Health
José Lojo Philadelphia Department of Public Health
Teresa Hamby New Jersey Department of Health
Stella Tsai New Jersey Department of Health
Kristen Soto Connecticut Department of Public Health
Rob Mathes New York City Department of Health and Mental Hygiene

Centers for Disease Control and Prevention (CDC)

Michael Coletta
David Walker

Association of State and Territorial Health Officials (ASTHO)

Scott Gordon
Marcus Rennick
Mark Sum
Hither Jembere

Deloitte

Tyler Burbridge

Ishikawa Associates, LLC

Charlie Ishikawa

International Society for Disease Surveillance (ISDS)

Katrina DeVore
Laura Streichert

Workshop Hosts

New York City Department of Health and Mental Hygiene
Robert Mathes
Executive Summary

The diseases and events that impact public health do not adhere to jurisdictional boundaries. The sharing of public health data and best practices is an important way to enhance regional situational awareness. Developing relationships and building trust among surveillance professionals is a key first step for improving regional collaboration across public health agencies. In addition, recognition of the perceived benefits and barriers to data sharing help to generate buy-in and deeper understanding of the value of syndromic surveillance and the utility of sharing data, information, and colleague experiences.

A Regional Syndromic Surveillance Data Sharing Workshop was held in Health and Human Services (HHS) Region 2+ on March 31 – April 1, 2015 at the offices of the New York City Department of Health and Mental Hygiene. This was the sixth workshop in a series, with the ultimate aim to reach all ten HHS regions. Although workshop specifics varied across regions, the overall objectives of each is to advance participants’ skill in syndromic surveillance practice, examine and share best practices in analytic methods, identify regional benefits and barriers to data sharing, and develop action steps for advancing inter-jurisdictional data sharing.

The Region 2+ workshop participants included surveillance professionals from four state public health agencies and three local public health agencies. The workshop design used a self-directed learning and peer-to-peer problem solving and facilitation approach that included multiple points of participant contact including three pre-workshop calls, pre- and post workshop skill assessments, a two-day in-person workshop, and follow up support after the workshop (Appendix A).

In this HHS region, invitees identified and selected carbon monoxide (CO) poisoning during Superstorm or Hurricane Sandy as the focal surveillance topic for workshop activities and discussions. To prepare for the workshop, participants developed and shared analyses of CO ED visit trends between 10/29/2012 and 11/26/2012. Participants envisioned that sharing SyS data would provide a benefit for: understanding activity in neighboring jurisdictions, identifying data quality issues and developing solutions, and enhancing the presentation of their own surveillance data. Additional benefits of sharing ED data included improved preparedness with better analytic capability and situational awareness.

The barriers to ED visit data sharing in Region 2+ included: legal issues, concerns about data quality, lack of infrastructure, need for methods that would make data and information sharing less time intensive, concerns regarding data interpretation and use assurances, data confidentiality, and administrative and political issues for gaining decision-maker support. Participants were asked to indicate their readiness to share data at different levels (e.g., de-identified visit level, aggregated to county or state level) and with different stakeholders, including other HHS region 2+ jurisdictions, CDC, the public, and hospitals. In general, region 2+ jurisdictions are more ready to share aggregate data with other jurisdictions and CDC, and are unable to share results directly with the public, with notable exceptions, such as New York City, which publicly posts its aggregate SyS data. Specific actions to promote data sharing included steps to address legal barriers and data quality issues, and to improve the infrastructure for sharing.

Overall, the workshop evaluations indicated this training model was an effective way to establish and strengthen relationships among SyS professionals, build knowledge and skills in SyS practice, and identify solutions to barriers in order to promote inter-jurisdictional data sharing.
Background

Inter-jurisdictional syndromic surveillance data sharing is crucial to building national, near real-time public health surveillance capabilities. Developing a national picture of syndromic surveillance data requires data sharing to take place at local, state, and regional levels.

Now more than ever, policies and access to technologies make the current environment suitable for promoting syndromic surveillance (SyS) data sharing. Meaningful Use of electronic health records (EHR) and SyS have created the opportunity for near real-time public health surveillance. Additionally, there are an unprecedented number of tools and technologies available for data management, analysis, visualization, and dissemination that can be implemented and used by public health agencies. However, implementing these technologies alone is not enough to enhance regional and national situational awareness and create a national picture of near real-time surveillance. The public health workforce must have the knowledge and skills to use these technologies to their full potential and trust must be built among public health agencies and surveillance professionals to establish the foundation for data sharing.

The Data Sharing Workshops were developed to address these needs by bringing surveillance professionals from across a U.S Health and Human Services (HHS) administrative region together to share knowledge and skills, build trust, and initiate discussions and planning for future data sharing.

Workshop Description

A planning team that included staff from ISDS, ASTHO, and Charlie Ishikawa of Ishikawa Associates, LLC created and implemented the HHS Region 2+ workshop. Charlie led the workshop facilitation and design of workshop artifacts. The workshop was based on a model that utilizes a non-formal education (NFE) approach\(^2\), which features self-directed learning and peer-to-peer problem solving, and actively engages participants in identifying their learning needs and methods with guidance by a facilitator. Using a limited emergency department (ED) dataset for data sharing during the workshop, the training begins with a collaborative assessment and comparison of syndromic surveillance practices for a health condition of interest. Participants then identify and document their perceived benefits and barriers to SyS data sharing for that purpose. At the end of the workshop, participants brainstorm solutions for high priority barriers and commit to short-term actions or next steps.

Region 2+ participants selected syndromic surveillance of emergency department visits for carbon monoxide poisoning (CO) during Super Storm, or Hurricane Sandy, for the workshop. It was selected because CO SyS is a shared practice across jurisdictions, all participants believed that their practices could be improved, and the event was an example of a situation in which SyS data sharing would be beneficial. In preparation for the workshop, participants developed and shared analyses of CO ED visit trends during 10/29/2012 thru 11/26/2012 according to instructions provided (Appendix B). Participants also provided information about their jurisdiction’s syndromic surveillance system (i.e., metadata), and shared tabulated, aggregate data when possible. The final workshop agenda was shaped to achieve these objectives upon a

collaborative assessment of CO SyS findings and practices during Superstorm or Hurricane Sandy (Appendix C).

**Evaluation**
To evaluate the impact of the workshop on SyS knowledge and skills, participants were asked to complete pre- and post-workshop surveys, which contained the same questions to allow for direct comparison. The questions were divided into four SyS skills sections: data processing, data analysis and interpretation, communicating SyS information, and data quality assurance. For each section, participants were asked to give a self-assessment of specific SyS knowledge and skills using a five point scale: 1) I haven’t been exposed to this yet; 2) I know about this, but couldn’t do it without considerable help; 3) I know about/ can do this, but still need help sometimes e.g. manual/ web; 4) I know about/ can do this; 5) and, I know about/ can do this well enough to train someone else.

The pre-workshop survey was administered to participants when they first arrived at the Data Sharing Workshop and again at the end of the workshop. In addition to the SyS knowledge and skills questions, the post-workshop survey also included a section for participants to evaluate the workshop logistics and facilitation. Responses from the evaluation section were analyzed separately from the knowledge and skills section and were not compared to the pre-survey results. A follow-up survey was also sent one month after the workshop to assess any changes in data sharing taking place in the region; to determine the attendee’s use of the NSSP BioSense Platform before and after the workshop; and to inquire about activities that would help them to improve data sharing in their jurisdiction.

**Results**

**Best or promising practices for carbon monoxide poisoning surveillance**
Workshop participants noted that SyS has the greatest value for CO surveillance when there is an elevated risk of CO poisoning due to inappropriate power generator use, such as during severe weather events or electric power outages. Routine surveillance for CO can also help identify populations exposed to environmental hazards. The actual use of enhanced CO surveillance depends on health department resources. Given sufficient resources, it can provide insights that are useful in risk communication activities. Applications include:

- Designing pre-event education efforts for CO prevention;
- Identifying a target area or community for canvassing;
- Prioritizing messaging for public health spokes persons during press briefings; and
- Providing information for Trigger Health Alert Action Network notifications.

CO surveillance data have the greatest utility when accompanied with additional information for emergency preparedness and response purposes. Such information includes:

- A basic, epidemiological description or explanation of the surveillance data;
- History of CO poisoning in the affected population;
- Related trends in poison control center data for the same time period; and
- Reportable disease or condition surveillance information.

Workshop participants reported that CO surveillance reports should be shared with incident commanders who must receive information for dissemination to appropriate partners; hospitals; health care providers; local health departments; and leadership and policy makers.
Assessing trends across jurisdictions
Prior to the workshop, participants developed and shared analyses of CO ED visit trends from 10/29/2012 through 11/26/2012. Among the jurisdictions looking at their SyS data, participants found similarities in when CO ED visits peaked and declined, and differences in the age groups that were most effected. Increases were observed, as expected, during power outages. During the workshop activity, participants were asked to interpret CO ED visit surveillance reports prepared and provided by their colleagues. Although participants provided a similar level of basic information in their reports, they presented their reports differently. To interpret CO surveillance data from another jurisdiction, participants found the following report presentation elements the most helpful:

- Write-ups that provide an epidemiological description of the data, and background information;
- Time series graph and the tabulated data used to generate the graph;
- Age group stratifications of the data;
- Maps or geographic presentations of the data; and
- Syndrome definition used to categorize the visits as CO.

Additionally, participants discussed that the following additional items would have helped them gain greater and more useful insights:

- A uniform report format;
- Metadata about the system for the observation time period, specifically the number of hospitals, missing data, or any other relevant quality factor; and
- Description of the context for use, or why the system is being used for CO surveillance to include information about timing and severity of the event.
- Participants believed that a standardized syndrome definition might be helpful.

Benefits of Data Sharing
To explore the current state of data sharing readiness and the perceived benefits and barriers, participants agreed that their discussion of data sharing would:

- Focus on sharing emergency department visit data;
- Keep BioSense 2.0 in mind, but do not limit the vision of how that data will be shared based on current BioSense 2.0 capabilities;
- Imagine sharing ED visit data for multiple use cases, not just CO surveillance; and
- Include sharing data with Region 2+ health departments and the CDC, but exclude sharing with another region’s hospitals.

To start the group discussion on the benefits of data sharing, participants were asked to complete the phrase “access to your data will help me to…” (“your data” refers to data from Region 2+ participants’ agencies). Participants all agreed that sharing SyS ED visit data within their region would have some benefit to their own agency’s work. In addition, they reported that access to their neighboring jurisdiction’s data could improve preparedness, data analysis, and situational awareness. A summary of the discussion notes on benefits of data sharing is shown in Figure 1.
**Region 2+ Data Sharing Benefits**

Access to your data will help me to...

- Improve situational awareness
  - Prepare for data requests from our press office
  - Possibly better understand something happening in my jurisdiction
  - Inform situational awareness
  - Assess the full scope of even across jurisdictional boundaries (person, time, place)
  - Generate questions
  - Determine if something is local vs. widespread
  - Situational awareness for expected and unexpected events
- Take action
  - Help policy makers to make better decisions (better to know the big picture)
  - Help allocate scarce resources
  - Make decisions (public health decisions - preparedness)
- Improve analyses
  - Get ideas on how to use or visualize data more effectively
  - Construct a data analysis plan (make sure to analyze)
- Improve preparedness
  - See what is heading my way
  - Better prepare
  - Anticipate what may happen in my jurisdiction
  - Know what could happen at our borders
  - Anticipate and prepare what to do in terms of surveillance
  - Be prepared
- Make comparisons
  - See how different our jurisdictions are
  - Compare data analysis results
  - Find differences
- Get the big picture
  - Understand the situation in your area
  - Paint a better epi picture
  - Understand the specific event across jurisdictions
  - Get a regional picture
  - Get a better picture of my data
  - Understand entire picture of situation

**Barriers to SyS data sharing**
The barriers to greater ED visit surveillance data sharing in Region 2+ were discussed, documented and prioritized by workshop participants. In order of priority, the barriers are:

1. **Legal issues** that cover laws and regulations, data use agreements, understanding of public health science, subjective and variable interpretations, and responsiveness of the jurisdiction’s legal resources.
2. **Data quality, infrastructure, and sharing methods** that would make it easier and less time intensive for parties to share data and supplemental information (e.g., central internet-based location, contact lists, format, etc.).
3. **Data interpretation and use** assurances that shared data will not be used in research; and
4. **Data confidentiality, and administrative and political issues** that slow participants in convincing or enrolling senior decision maker support.

The discussion regarding specific obstacles for each key barrier are detailed in Figure 2.

**Figure 2:** Region 2+ Data Sharing Barriers

<table>
<thead>
<tr>
<th>Region 2+ Barriers to Data Sharing</th>
</tr>
</thead>
<tbody>
<tr>
<td>My barrier to data sharing is…</td>
</tr>
<tr>
<td>• <strong>Legal issues</strong></td>
</tr>
<tr>
<td>• Limited data sharing agreement to share at certain level</td>
</tr>
<tr>
<td>• DUA - limitations of what we’re allowed to share</td>
</tr>
<tr>
<td>• Local law limitations</td>
</tr>
<tr>
<td>• Legal issues</td>
</tr>
<tr>
<td>• Legal - depends on level of understanding of public health science</td>
</tr>
<tr>
<td>• Legal - responsiveness of lawyers/ legal office</td>
</tr>
<tr>
<td>• Legal - Interpretations of laws and regulations changes with staff turnover</td>
</tr>
<tr>
<td>• <strong>Data quality and infrastructure</strong></td>
</tr>
<tr>
<td>• IT infrastructure (lack of staffing, knowledge, capacities and capabilities)</td>
</tr>
<tr>
<td>• How much additional work it could entail</td>
</tr>
<tr>
<td>• Time constraint for conducting analyses</td>
</tr>
<tr>
<td>• Time</td>
</tr>
<tr>
<td>• Data system - manual vs. automatic</td>
</tr>
<tr>
<td>• State run system - no control</td>
</tr>
<tr>
<td>• The data system we feed into - system ownership (don’t have authority to make changes within it)</td>
</tr>
<tr>
<td>• Lack of resources (person-time)</td>
</tr>
<tr>
<td>• Data quality (don’t want to share bad data)</td>
</tr>
<tr>
<td>• Data limitations (quality and content)</td>
</tr>
<tr>
<td>• <strong>Structure for data sharing/ sharing methods</strong></td>
</tr>
<tr>
<td>• No straight forward method to do so</td>
</tr>
<tr>
<td>• <strong>Data interpretation and use</strong></td>
</tr>
<tr>
<td>• Interpretation of data</td>
</tr>
<tr>
<td>• How data are used - Limitation on use for “research”</td>
</tr>
<tr>
<td>• <strong>Data confidentiality</strong></td>
</tr>
<tr>
<td>• Balance between confidentiality and public health</td>
</tr>
<tr>
<td>• Identifiable data</td>
</tr>
<tr>
<td>• <strong>Administration and politics</strong></td>
</tr>
<tr>
<td>• Lack of decision making authority to say ok to do so</td>
</tr>
<tr>
<td>• Political administration</td>
</tr>
</tbody>
</table>

**Readiness for SyS Data Sharing**

Key issues around sharing ED data are 1) what level data to share and 2) who to share it with. Different types of data and exchange have particular barriers and utility. Region 2+ workshop participants completed a matrix that indicated their ability to share data at the visit level, county level, and state level, and with other HHS Region 2+ jurisdictions, the CDC, the general public, and hospital providers. A compilation of the collective data created a regional snapshot of readiness for data sharing (Figure 3). The results indicate that more Region 2+ jurisdictions are ready to share data at the county and state level than visit record level data. Also, Region 2+ jurisdictions are least ready to share SyS data with the general public, and most ready to share
with the CDC and hospital data providers. While not all Region 2+ jurisdictions are ready to share with other Region 2+ jurisdictions, most indicated a willingness to share SyS data with each other at all levels of data.

**Figure 3:** Percent of Region 2+ jurisdictions indicating readiness to share various levels of SyS data with four groups

<table>
<thead>
<tr>
<th>Level of Data</th>
<th>All Region 2+ Jurisdictions</th>
<th>CDC</th>
<th>General Public</th>
<th>Hospital Data Providers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visit record - including patient Zip code (n=7)</td>
<td>0%</td>
<td>57%</td>
<td>0%</td>
<td>71%</td>
</tr>
<tr>
<td>County (n=7)</td>
<td>43%</td>
<td>71%</td>
<td>14%</td>
<td>71%</td>
</tr>
<tr>
<td>Customized county combinations (n=6, only state and county jurisdictions)</td>
<td>67%</td>
<td>83%</td>
<td>50%</td>
<td>83%</td>
</tr>
<tr>
<td>State (n=4, only state jurisdictions)</td>
<td>100%</td>
<td>100%</td>
<td>75%</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Actions to advance data sharing**

The workshop participants worked together to identify steps that could be taken to promote data sharing by addressing the barriers. The scope of the actions spanned from very difficult and long-term (e.g., change health codes) to simpler steps that could be done in the short term (e.g., develop a central location for data sharing). See Figure 4 for details.

**Figure 4:** Region 2+ Actions to improve inter-jurisdictional data sharing

**Steps identified by HHS 2+ Workshop Participants to Address Barriers to Data Sharing**

1. **Legal Barriers**
   - Make changes to the health code
   - Incorporate broader language when DUAs are changed
   - Standardize language in DUA to incorporate regional goals
   - Agree on the consistent and professional use of shared data for trust-building
   - Build rapport with health department legal teams (e.g. lunches, events) to gain a better understanding of each other’s work

2. **Structure for data sharing/ sharing methods**
   - Develop a central location for sharing
   - Ensure accessibility for all regional partners
   - Discuss and decide what capabilities are needed (e.g., messaging)
   - Discuss feasibility and how to move forward
   - In the short term, use email until other option is feasible
   - Create contact list of regional and national partners
3. **Data quality and infrastructure**

- **IT Capabilities**
  - Discuss and decide the minimum common attributes needed to be successful
  - Work with IT to make customizations when possible (each HD can tackle this on their own)

- **Data quality/ quantity**
  - Addressed in new communications protocol
  - Discuss and decide on interpretation of data quality standards in protocol

- **Time burdens**
  - Try to automate as much as possible - use of NSSP as potential tool
  - Scope - set realistic priorities (e.g., A notice from the requester when data/information is no longer needed)

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**Workshop Evaluation Results**

Participants were asked to complete a pre- and post-workshop evaluation survey to assess their syndromic surveillance (SyS) skills in:

- Data processing,
- Data analysis and interpretation,
- Communicating syndromic surveillance information, and
- Data quality assurance.

Quantitative evaluations were done to compare respondents’ pre- and post-workshop survey responses. The graphs below show comparisons of pre- and post-workshop survey results in the four SyS knowledge and skills sections of the survey. Eight participants responded to the pre-workshop survey, and all ten participants responded to the post-workshop survey.

Participants were asked 6 questions about their SyS knowledge and skills in data processing. Figure 5 shows that there was little change in average percent of responses from pre to post workshop in each of the Likert scale options. The largest change was in the “I know about/ can do this, but still need help sometimes” category: in the pre-workshop survey the average percent of responses for all 6 questions was 6%, and that increased to 10% in the post-workshop survey. The “I know/can do this well enough to train someone else” category had the highest values in the pre- and post-workshop surveys (73% and 72% respectively).
Participants responded to 10 data analysis and interpretation questions in both the pre- and post-workshop surveys. The largest pre- to post-survey change was in the “I know/can do this well enough to train someone else” category, which increased from 43% in the pre-workshop survey to 55% in the post-workshop survey (Figure 6). All of the other knowledge categories decreased from the pre- to the post-workshop survey.

Figure 5: Pre and post workshop survey comparison of data processing questions

Figure 6: Pre and post workshop survey comparison of data analysis and interpretation questions
The communicating syndromic surveillance information section of the pre- and post-workshop survey had 4 questions to assess participant knowledge and skills. The “I haven’t been exposed to this yet” and the “I know about this, but couldn’t do it without considerable help” categories had no responses in either the pre- or post-workshop surveys (Figure 7). The only category that increased from the pre- to post-workshop survey was the “I know/can do this well enough to train someone else,” which increased from 34% to 73%.

**Figure 7:** Pre and post workshop survey comparison of communicating syndromic surveillance information questions

Participants were presented with 5 data quality assurance questions in the pre- and post-workshop surveys. Both the “I know about/can do this” and the “I know/can do this well enough to train someone else” categories increased from the pre to the post-workshop survey (Figure 8). Conversely, the “I haven’t been exposed to this yet” and the “I know about/can do this, but still need help sometimes” categories decreased from the pre to the post-workshop survey.
Logistics and Facilitation

Overall, participants were satisfied with the workshop logistics and facilitation. No participants responded that they were “not very” or “not at all” satisfied with any of the logistics and facilitation aspects of the workshop.

In the last section of the evaluation, participants were asked to indicate their satisfaction with various aspects of the workshop facilitation using a five-point scale (Figure 9). Nine participants said they were very satisfied with the format of the workshop, and 1 said he/she was somewhat satisfied. All 10 participants said they were very satisfied with the quality of the workshop facilitators.
**Figure 9:** Participant satisfaction with workshop facilitation (n=10)

Participants were also asked to rate their satisfaction with the number of pre-workshop planning meetings and the amount of pre-workshop preparation work. All 10 participants said that the amount of pre-workshop preparation work was “just right”.

**Outcomes**

This workshop brought together key stakeholders involved in syndromic surveillance practice in HHS Region 2+ to meet and work together on training that they played an active role in developing. By the end of the workshop all participants agreed that they would like to share data at some level with their neighboring jurisdictions.

In addition to the primary outcome of building the trust and familiarity essential for cross-jurisdictional data sharing, the specific outcomes of this workshop can be aligned with the original objectives:

1. *Advance participants’ skill in syndromic surveillance practice.*

This was measured through the pre/post surveys where respondents indicated their perceived level of proficiency in a number of different areas relevant to SyS. Based on their self-assessments, the Region 2+ workshop participants advanced their competencies (knowledge and skills) in:

- Data processing;
- Data analysis and interpretation;
- Communicating syndromic surveillance information; and
- Data quality assurance.
The "I know/can do this well enough to train someone else" category had the highest percent of responses in all four SyS knowledge and skills sections in the post-workshop survey. Additionally, three SyS sections (data analysis and interpretation, communicating SyS information, and data quality assurance) all saw increases in the percent of responses in the “I know/can do this well enough to train someone else” category.

The communicating SyS information category had the highest level of participant skills based on the post-workshop survey; All participants indicated either “I know about/can do this” or “I know/can do this well enough to train someone else” after the workshop. This shows improvement from the pre- to post-workshop survey in this knowledge and skills section because in the pre-workshop survey 19% of responses were in the “I know about/can do this, but still need help sometimes” category (this decreased to 0% in the post-workshop survey).

On the other hand, the data processing section saw very little change in participant knowledge and skills from the pre- to the post-workshop survey. The “I know about/can do this, but still need help sometimes” category saw the largest change from the pre- to the post workshop survey with an increase of 4 percentage points (from 6% to 10%). Based on these results, the workshop had the smallest impact on participants’ knowledge and skills in data processing.

2. **Examine and share best practices in analytic methods.**

Workshop participants shared their data and approach to CO surveillance during Super Storm Sandy, and compared observed trends during a proscribed time period. In addition, they discussed preferences for information sharing across jurisdictions, including reporting formats.

3. **Identify regional benefits and barriers to data sharing.**

Facilitated discussions during the workshop led to compilations of the group’s ideas regarding benefits and barriers to data sharing that can serve as a guide to identify areas where specific technical assistance activities would have an impact.

4. **Develop action steps for advancing inter-jurisdictional data sharing.**

By the end of the workshop, the Region 2+ group had together developed their goals for improving data sharing across jurisdictions. They focused on specific solutions and actions that fell within the top three barriers to data sharing identified through the facilitated workshop discussions.
# Appendix A

## Regional Data Sharing Workshop planning and facilitation timeline

<table>
<thead>
<tr>
<th>Task</th>
<th>Start</th>
<th>End</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Workshop Orientation</strong></td>
<td>Nov. 14, 2014</td>
<td>Nov. 21, 2014</td>
<td>Participants provided with workshop orientation information, and surveyed for their experience with SyS, attitudes about inter-jurisdictional SyS data sharing and interests in the workshop activities.</td>
</tr>
<tr>
<td><strong>Planning Meeting #1</strong></td>
<td>December 15, 2014</td>
<td></td>
<td>Participants and workshop planning team discussed goals and expectations for the workshop and make key workshop decisions including preferred surveillance tools and the surveillance topic.</td>
</tr>
<tr>
<td><strong>Planning Meeting #2</strong></td>
<td>January 14, 2015</td>
<td></td>
<td>Workshop plans were finalized and workshop preparations tasks were decided.</td>
</tr>
<tr>
<td><strong>Workshop Preparation</strong></td>
<td>Jan. 15, 2015</td>
<td>Jan. 23, 2015</td>
<td>Participants prepared for the workshop by completing the analyses on the agreed upon surveillance topic and providing metadata about their surveillance systems.</td>
</tr>
<tr>
<td><strong>Planning Meeting #3</strong></td>
<td>March 20, 2015</td>
<td></td>
<td>The third planning meeting was scheduled to re-connect with participants and review the preparation materials and workshop agenda after the workshop initially scheduled for January 2015 was postponed.</td>
</tr>
<tr>
<td><strong>Workshop</strong></td>
<td>March 31, 2015</td>
<td>April 1, 2015</td>
<td>Participants gathered at the New York City Department of Health and Mental Hygiene for the workshop from 12pm on the first day to 12pm on the second day.</td>
</tr>
<tr>
<td><strong>Follow-up Meeting</strong></td>
<td>April 17, 2015</td>
<td></td>
<td>Participants review workshop outputs and data sharing action items and develop a plan for completing the action items.</td>
</tr>
</tbody>
</table>

3 The time gap between workshop preparation and workshop planning is due to postponement of the workshop originally scheduled for the end of January 2015 due to severe weather.
Appendix B

Regional Data Sharing Workshops

Pre-workshop instructions to participants for CO data analysis

Help assess and characterize the population impacts of Super storm or Hurricane Sandy in late-2012 to inform emergency response measures by describing the trends in emergency department (ED) visits for carbon monoxide poisoning (CO), for each day between 10/1/2012 - 11/26/2012 (8 weeks). Use your jurisdiction’s ED data and syndromic surveillance tools to:

1. Count and calculate the proportion of ED visits with symptoms of Carbon Monoxide Poisoning by relevant:
   A. Geographic or other spatial boundaries (e.g., coastal areas, or jurisdictions impacted by the storm); and
   B. Age groups (if possible)

2. Determine whether, and if so when and where, CO visits exceeded expected values during the period following Sandy (i.e., 10/29/2012 - 11/26/2012). Use the method(s) that provide sufficient confidence in your interpretation of the trends. Box 3 (page 3) provides SAS code for a CUSUM method.

3. Create a report that best describes CO ED visit trends during the time period following Sandy (i.e., 10/29/2012 - 11/26/2012) for your regional public health colleagues. Please include outputs that would be useful to identifying or describing:
   A. Population health trends at local, state, and regional scales;
   B. Analyses and visualizations that are most useful for CO syndrome surveillance;
   C. Improvements or modifications to CO classifiers for sufficiently comparable results;
   D. Enhancements to the Regional Emergency Communications Protocol; and
   E. How surveillance for ED visits with CO symptoms can best be used for public health action.
# Appendix C

**Regional Data Sharing Workshops**

**Region 2+ Workshop Agenda**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>Time</strong></td>
<td><strong>Activity Description</strong></td>
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<tr>
<td>Noon</td>
<td>Working lunch: Set-up and pre-workshop assessment</td>
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<tr>
<td>1:00</td>
<td>Warm-up, agenda review, and introductions</td>
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<td>2:00</td>
<td>Data Sharing Activity – CO SyS During Superstorm/Hurricane Sandy</td>
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<tr>
<td>2:15</td>
<td>Break-out groups</td>
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<tr>
<td>4:30</td>
<td>Regroup and Synthesize</td>
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<td>5:00</td>
<td>Sharing Technology Requirements</td>
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<td>5:30</td>
<td>Adjournment</td>
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<tr>
<td>7:00</td>
<td>Group Dinner</td>
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