

How the Boston Public Health Commission created a client level data system that providers actually use

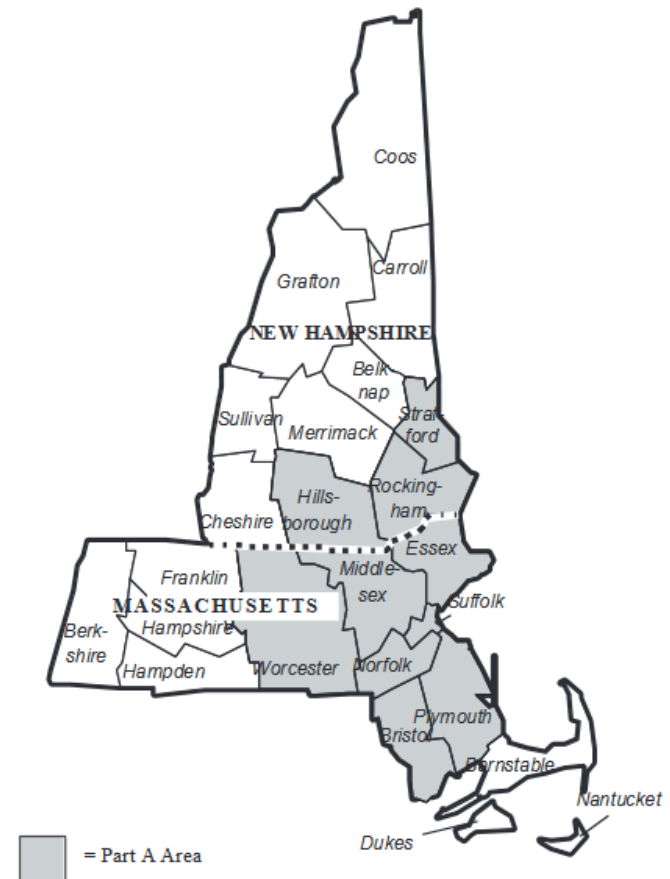
August 24, 2016

HIV/AIDS Services Division
Infectious Disease Bureau
Boston Public Health Commission



Jurisdictional Profile

- The Boston EMA is a 10-county region, comprising 7 counties in MA and 3 counties in NH.
- The Boston EMA Planning Council is the community planning body, which prioritizes and allocates funds to service categories.



Jurisdictional Profile

- Boston Public Health Commission (BPHC) is designated as the Part A recipient.
- The FY 2016 Award for the Boston EMA was \$14.6M.
- BPHC funds 34 direct service providers, including 54 programs.

Central themes in the BPHC experience prior to moving to a cloud-based system

- Maintaining an aging data system
- General lack of progress to modernize the infrastructure needed to collect the ever-expanding amount of RWHAP data
- Addressing the needs of numerous stakeholder groups in order to build an optimal user experience for all participants
- Considering scalability and flexibility for data projects during initial implementation vs. the entire lifespan of a data system

“A data system held together by scotch tape.”

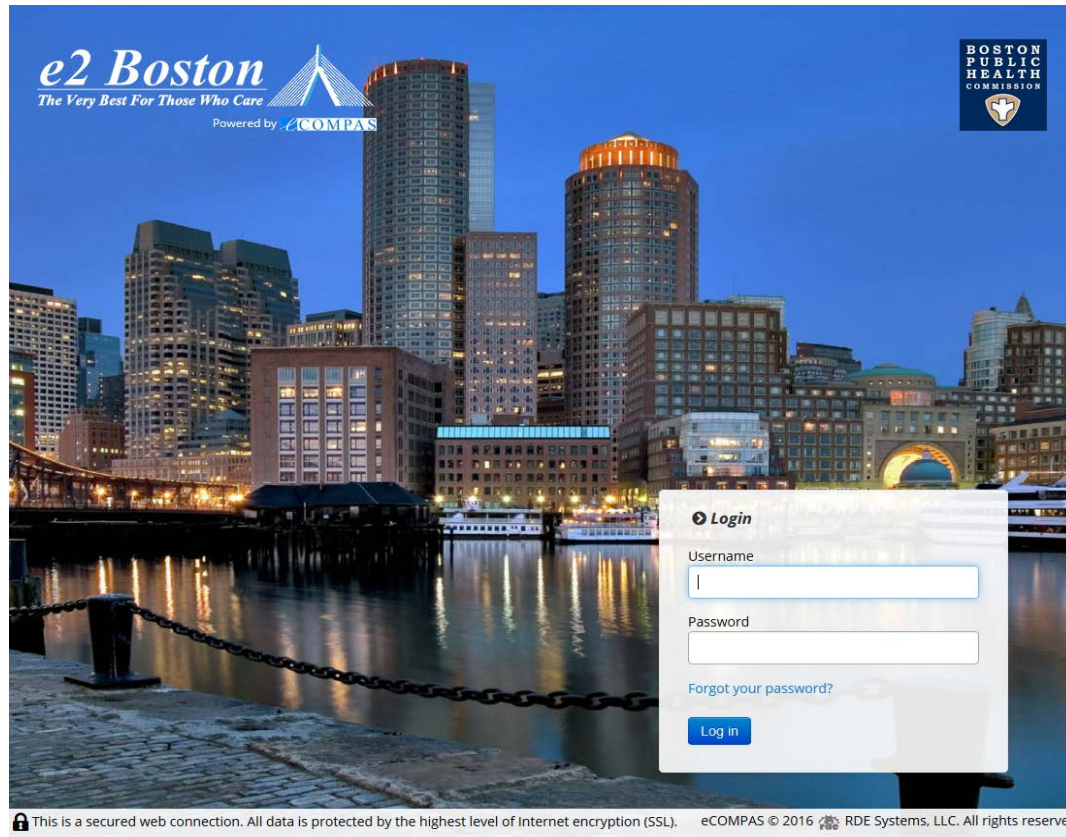
- BPHC previously had a custom-built database that could not be modified.
- Agencies submitted client demographic & service utilization via paper forms and data entry staff manually entered the data.
- This system could not generate the RSR XML file. In the first RSR year, BPHC had to use T-REX to help providers submit.

BPHC needed a solution...fast!

- The original vision was to build a networked system that allowed BPHC to also connect with MA Part B data, creating one universal system to report all RW data.
- Failure of many data system projects is not knowing what you want, how much you can afford, and how long it takes to get the product out on the street.
- To avoid repeating mistakes from the past, the solution must be a commercially off-the-shelf product that allowed for customizability, but had a strong core system.

How do you maintain control over the development process?

- BPHC worked collaboratively with the vendor to design a user-friendly interface and reports that reflect the needs of program staff.
- This requires recipients to also work collaboratively within their organization, such as with IT/IS departments.
- Consider dividing up the labor within the development process into programmatic (e.g. data dictionary) vs. IT/IS (e.g. security) buckets in order to promote a speedy implementation.



RDE was selected as the final vendor in February 2013.

BPHC launched e2Boston in March 2014 and is now well into its third year of implementation.

What do you do when you have champagne taste, but beer money?

- The primary goal of building a data system was to at least have a system that capture all the required RSR fields and can generate the XML file.
- The biggest shift for all stakeholders was the fact that this HIV data system was a website, not a desktop application that needed to be installed locally.

What do you do when you have champagne taste, but beer money?

- In the initial year, RSR functionality was included at launch, in addition to capturing HRSA and Boston EMA-specific client demographic and service utilization data elements.
- BPHC was not able to incorporate any health outcomes data elements at launch.
- The site utilizes user-friendly descriptions and instructions, including plain language feedback on RSR XML errors.

Having plain language feedback makes it easier and quicker to fix problems with your XML file.

HAB (Check Your XML Tool)	eCOMPAS
<p>The 'EthnicityID' element is invalid - The value '20' is invalid according to its datatype 'urn:rsrNamespace:EthnicityLkup' - The Enumeration constraint failed.</p>	<p>The value "20", which was entered into a <EthnicityID> tag, is invalid. You must use one of the following values for this tag: 1, 2</p>
<p>The 'ServiceDate' element is invalid - The value '09,01,1714' is invalid according to its datatype 'urn:rsrNamespace:dateType' - The Pattern constraint failed.</p>	<p>The value "09,01,1714", which was entered into a <ServiceDate> tag, is invalid. This tag may have a specific format for data (for example, dates should be in mm,dd,yyyy format with commas between each tag). It may also have restrictions on the values that can be entered (eg. date fields will not allow a year prior to 1900). Check the import manual for acceptable values/data formats for this attribute.</p>

Start with a good core product and then upgrade/modify as necessary.

- BPHC also operated a dental reimbursement program that needed a more comprehensive data system. A special version of e2Boston was built for the program to also collect additional clinical and diagnostic information necessary to assess and determine treatment options for PLWH receiving dental care.
- This version can only be used by dental staff, but can still report data by funder so BPHC can properly account for how Part A funds are being used by the program. The system also tracks state and RW Part B funds for services.

e2Boston utilizes an open data standard to provide user choice.

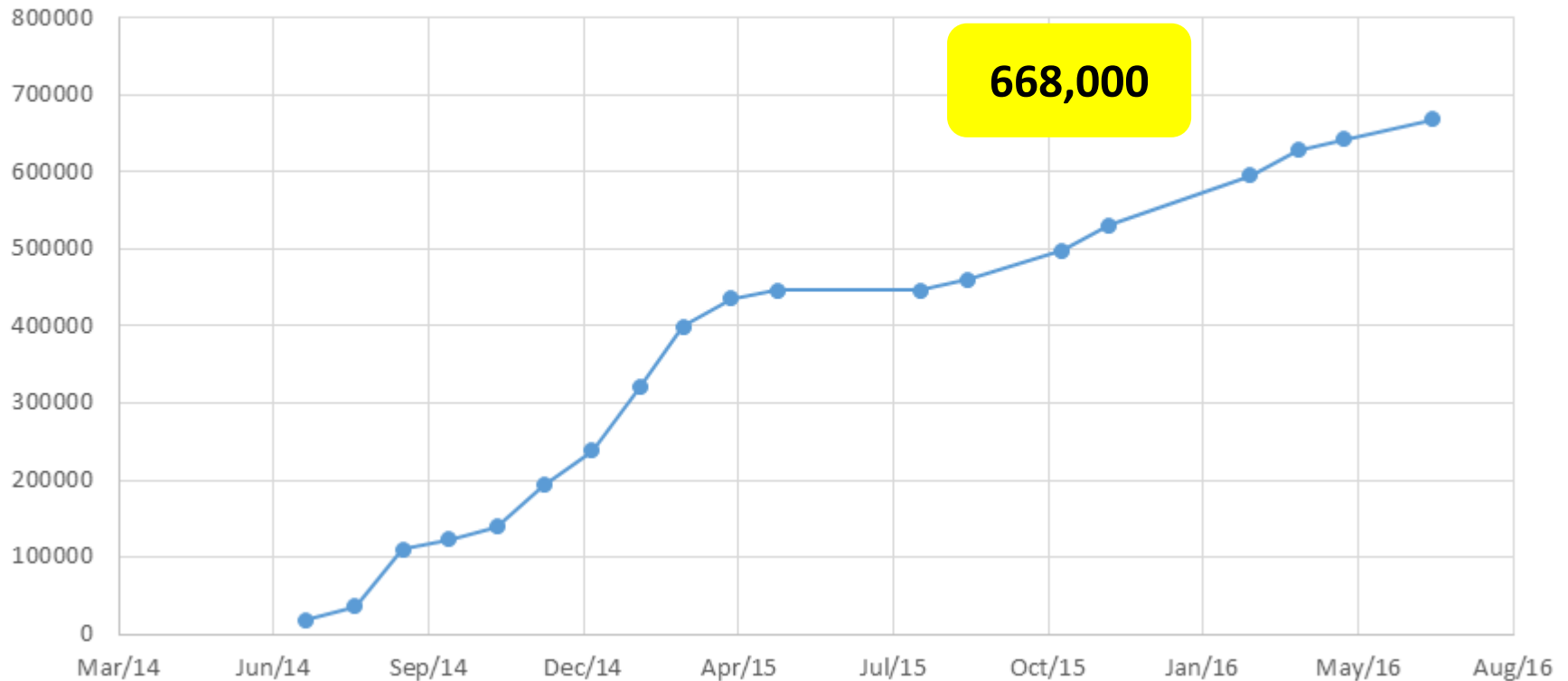
- Larger agencies, such as health centers, already utilize an existing EMR and using e2Boston as a primary system may not be an option.
- BPHC and RDE worked to develop a data dictionary and data import standards that allow agencies to export data from their existing systems into a database file, which can be directly uploaded onto the e2Boston website.
- Users can import client demographic, service utilization, and/or health outcome data.

Data import is a highly prized functionality within e2Boston.

- 17 of 34 funded agencies import their data.
- These agencies typically serve between 100-500 clients annually.
- The biggest time saver is to import service utilization data, especially for programs that provide a high volume service, such as daily congregate or home-delivered meals, office visits, or support group meetings.
- Importing data is also helpful during RSR season when RSR-specific data elements must be updated for a majority of clients.

Seventeen import users imported over 600K data elements since launch.

Data Elements Imported to e2Boston, cumulative



Users can enter and see their data in real time.

- One of the typical challenges with older processes was the lag time to get data reported, analyzed, and then used for RW activities. e2Boston allows users to report data on their own schedule.
- BPHC requires that most data is reported every 3 months. Nearly half of all agencies enter data on a daily basis.
- Some data import users also upload data more often than every 3 months, because smaller batches and frequent uploads encourage program staff to stay up to date on their client documentation. This reduces the need for data staff to chase after data as reporting deadlines loom.

Users can enter and see their data in real time.

- All users can run reports at any time to review any previously entered data, whether it's two years ago or 10 minutes ago.
- Providers can enter their work for the week, run a report showing total volume of services, and then send a copy of that report to their supervisor.
- e2Boston also features advanced visual analytics that allow users to generate tables and graphs for internal usage, BPHC reporting, or data for grant applications.

The HIV Care Continuum is everywhere and now it's in e2Boston.

- In March 2015, BPHC released a health outcomes module, which allows providers to use the same interface to now submit client demographic, service utilization, and outcomes data.
- Data import for outcomes was available at launch.
- Some of BPHC's outcomes include: HIV viral suppression, housing status, last medical visit date, mental health.

Viral suppression is the ultimate goal.

- VS is tracked on the client level within e2Boston. Providers can identify individuals or cohorts that are not suppressed and target them for services.
- BPHC has dramatically shifted its focus on improving viral suppression (VS) and requires agencies to review the VS rates among their clients. From FY15 data, 89% of Part A clients reported an undetectable* viral load.
- Procurement activities now require that applicants be able to report on their current VS rates and compare against the EMA/state continuum of care.

* Undetectable = less than 200 copies/mL.

Lessons learned through this process:

- Development and implementation should be done in a speedy manner, because lengthy delays can make your project obsolete
- Building a system that people will actually use and be mindful of the user experience
- In order for providers to fully take advantage of any data system, they must have real-time access to their own data – this is essential for tackling viral suppression

See how the Boston EMA tracks VS!

Exhibition Hall, P110

Title: Identifying significant indicators of unsuppressed viral load in the Boston EMA

e2Boston will keep evolving.

- One-click HIV care continuum at agency, service category, and EMA levels
- Fiscal reporting and cost accounting functionality, a necessary component for unit-rate services
- Client enrollment data sharing, allowing providers to send RW eligibility information to others in the Part A network