Web-based Data on Inpatient Psychiatric Beds for Children and Adolescents

Report to the Committee Studying Treatment Options for Offenders with Mental Illness or Substance Abuse Disorders (SJR 97/HJR 142, 2002)

November 25, 2002

Written public comments may be submitted to Nancy Roberts by December 20, 2002, at the following address: Division of Legislative Services, General Assembly Building, 910 Capitol Street, Richmond, Virginia, 23219 (e-mail nroberts@leg.state.va.us or fax 804-371-0169). If you have questions, please call Nancy Roberts at (804) 786-3591.

Report of the DMHMRSAS on the Feasibility And Cost of Developing a Web-Based System For Information on Psychiatric Inpatient Beds For Children and Adolescents

Item 329 I

2002 Appropriation Act

James S. Reinhard, M.D.
Commissioner

September 30, 2002

EXECUTIVE SUMMARY

A Study that Examines the Feasibility and Costs of Developing a Web-based System for Providing Daily Updated Information on Licensed and Available Acute Psychiatric Inpatient Beds for Children and Adolescents

The 2002 Appropriation Act (HB30, Item 329I) of the General Assembly directed the Department of Mental Health, Mental Retardation and Substance Abuse Services (DMHMRSAS) to examine, in conjunction with the Virginia Hospital and Healthcare Association (VHHA) and private providers, "the feasibility and cost of developing a web-based system for providing daily updated information on licensed and available acute psychiatric beds for children and adolescents."

Using today's technology, the careworker can have access to the timely information they need in their attempt to locate available bed services within the Commonwealth. Three other states, Maine, California and New Mexico, have developed, or are in the process of developing, such a system with Maine just beginning to pilot their in-house developed web-based software. The Maine pilot (see attachment A) offers bed availability data housed in a centralized clearing-house database to anyone with access to the Internet. Participating facilities have member logon-Ids and passwords that allow them to update bed availability in their facility for child, adolescent adult and forensic beds. Although the Maine Health Association (MHA) plans to conduct a detailed evaluation of this pilot program in the near feature, the preliminary feedback from the participants has been very positive.

The system design being piloted in Maine can certainly be developed and implemented in Virginia. The design concept has been discussed with VHHA and Virginia Health Information (VHI). Both agree development of such a system would require just as much effort as modifying an existing system acquired from another state. Costs associated with development and implementation range between $20,000 to $25,000 depending on the aggressiveness of the project schedule. The most logical place to house the web-based application is at VHI which currently compiles significant amounts of data from Virginia providers and has the storage capacities already in place to handle the additional load. Michael Lundberg. Executive Director of VHI, has indicated his existing data systems already house approximately thirty-percent of the required facility demographic data. The data flow would be very similar to other data VHI already processes (see attachment B).

It was generally agreed upon by study participants that the greatest difficulties would be:

- Getting all stakeholders to agree on what data needs to be collected, such as level of care and how it is being searched and displayed

- Ensuring all providers update the system in a timely manner

- Ensuring information is accurate

These types of difficulties are common to all business application projects. By properly applying effective compromising techniques and data integrity safeguards, these problems can be overcome to the point where the system can still be used effectively. At the request of DMHMRSAS, VHHA posed three questions regarding the benefits of such a system to three individuals from various provider organizations around the Commonwealth. The responses were split between the positive and the negative with one individual citing the possibility of such a system being used by the Commonwealth "against the private providers to shift additional uncompensated patients into the private sector." No real burden regarding the updating/maintenance of the system's data by private providers was cited by any of the respondents. However, the respondent previously quoted also stated that the "energies should be spent on a more open system of patient referrals, placing patients in the appropriate environment or facility, not the first available bed."

At the request of DMHMRSAS, Michael Lundberg of VHI provided input regarding the costs of developing a web-based bed availability system for the purposes of this study. According to VHI, who based their general system description on specifications provided by DMHMRSAS, designing, developing, and implementing such a system would cost VHI $ 23,350. Annual maintenance by VHI would cost $8,700. These amounts would most certainly be offset by the tremendous reduction of, as one respondent noted, the "hours (spent) trying to find beds."

DMHMRSAS and VHI support the development of a web-based bed availability system. The need has been demonstrated and the technology exists. The benefit of timely, accurate data that is available to those who need it when they need it significantly outweighs the relatively small cost associated with submission. VHHA also believes there "needs to be a more efficient system for identifying bed availability and if a web-based system can provide that and the costs can be absorbed, VHHA would certainly be willing to support it."

Introduction

It is becoming widely known that the Internet is a means by which business applications are accessible by any authorized user regardless of platform. Both the public and private sectors are realizing the value of this common network by targeting centralized business applications directly at the information source. The days of mailing in paper forms of sales data or computer disks of patient/client data to a centralized data entry location are quickly becoming a thing of the past.

Receiving data directly from the source eliminates delays, reduces errors and maintains accountability. Collecting available bed data at the source for child and adolescent clients will provide near real-time, accurate data to those who need it when they need it. It will allow the careworker to focus more of his energy on the individual instead of the administrative overhead.

Background and Description of Problem to be Solved

One of the most frustrating problems a careworker confronts is matching a client's immediate needs with a bed that provides the appropriate level of care. After checking through manual listings, some days old, and placing phone calls to local or regional facilities, the careworker often relies more on luck than reliable bed availability information. This scenario is aggravated further when facilities are reconfigured or closed altogether which was the case in 2001 with the Capitol Medical Center in Richmond. Technology now provides the means to obtain the much sought after information at the touch of a few buttons. In response to the budget language, Item 329I, and HJR85, which was carried over, this study closely analyzes the feasibility of developing this technology to meet the need.

Process Used

1. Reviewed DMHMRSAS systems in development or already in production to see if a system already exists that can be directly applied or modified to satisfy the need. None was found. Considered in-house development of the web-based system.

2. Contacted VHHA to see if they knew of any system within Virginia or any other state that could satisfy the need. VHHA had already identified an effort that was being piloted in Maine. VHHA shared the Maine information with DMHMRSAS for the purposes of this study. DMHMRSAS pursued other leads regarding studies in California and New Mexico and found they were in the very early stages with nothing to share at this point.

3. Met with VHI to determine what common data they had available and to what extent they would be interested in the development of a web-based system. Shared the system requirements with VHI and discovered VHI already houses approximately one-third of the facility demographic data elements required for the web-based system's basic design. VHI produced a high-level overview of the system design and associated costs which was incorporated into this study.

4. Requested VHHA poll a small number of private providers to measure the level of receptiveness by those stakeholders most impacted by the system. The three questions asked were:

- Do you feel a centralized system that provides bed availability data is needed?

- What benefits would you realize if such a system was established?

- Would the benefits be worth the costs in terms of time required by providers to key the data into the centralized system (additional administrative burden) possibly twice daily?

The responses to the poll are in attachment C.

List of entities and/or persons involved:

DMHMRSAS – Dave Burhop, CIO - Lead Analyst on Study

VHI – Michael Lundberg, Executive Director – Analyst on Study

VHHA – Katharine Webb, Vice President
Jay Khosla, Administrative Intern – Analyst on Study

Private Providers (asked to provide responses to poll):

Mr. William Semones, Vice President, Mental Health Services - CentraHealth
Mr. Steuart Kimmeth, Vice President, Administration – Peninsula Behavioral Center
Mr. Allan Erbe, Administrator, Bons Secour, Maryview – Behaviorial Medicine Center

Findings and Recommendations

Benefit

Such a system would help facilitate admissions to facilities by allowing community service boards, psychologists, psychiatrists, licensed clinical social workers and other providers of care to quickly determine the availability of beds appropriate for their clients needing services.

Types of Information Needed

1. Bed availability by facility is the main type of information desired. Specific information listed could include:

a. The number of child beds available by service level. The service levels refer to the type of care needed and include short vs. long-term care as well as a measure of the intensity of services required. The levels would be defined with input from DMHMRSAS, VHI, and health care providers

b. The number of adolescent beds available by level as referenced above. An indication of when the licensed facility last updated the registry.

2. Facility demographic and contact information is also needed to allow those seeking services for a client to contact the facility. Information needed would include: Facility name, street address, phone #, website, admission contact person name/title, phone #, email address and an emergency after hours telephone # if it exists.

3. To ensure the system provides what is needed, a design committee with representation from various stakeholder groups would be formed by VHI and used as the primary source of design input.

Providing the Required Information

VHI suggests that all licensed health care facilities be provided with password-protected access to an administrative section of the website to submit updates to the website. A help section is anticipated to provide details on how to provide the needed information. Following entry, information provided by facilities can be displayed with an opportunity to confirm the accuracy of information provided.

Accessing the System for Bed Availability

The system will be accessed via a website and could be available twenty-four hours a day except during scheduled maintenance. If desired, a login procedure can be employed to capture basic information on the type of health care provider seeking information. This can provide information on the frequency of use by groups of providers.

The person accessing the system can locate facilities with available beds by specifying any of the variables listed below alone or in combination.

By Geographic region
County/city
Facility name
Child or adolescent beds
Service Level
Gender

Search results will list the facilities meeting the criteria and provide location and contact information.

Notification to Licensed Facilities of Web Registry

In order to maximize participation in the program a series of mailings including program details and a manual on how to provide the information is proposed. The manual will describe the purpose of the program, benefits, information needed, how to provide the data, frequently asked questions and include information on where to go for additional information.

Notification to Potential Users of the Web Registry

Community Service Boards, psychologists, psychiatrists, licensed clinical social workers and other providers must be informed of the new registry and be provided periodic updates. This is proposed through efforts with related trade associations and direct mailings by DMHMRSAS.

A description of estimated costs for the above activities follows. Costs are estimates and will vary if specifications, program requirements, or assumptions are revised.

Preliminary Estimate of Costs for Web based Registry of Psychiatric Beds		
1. Website		
Task	**Description of Work**	**Cost**
A. General appearance and navigation	Create graphics and layout appropriate to website. Graphic usage will be at a minimum to enhance speed of information retrieval.	**30 hrs. $2400**
B. Search	Create search page to allow users to search for available beds based on multiple criteria. Search criteria may include, but not limited to: By Geographic region County/city Facility name Child or adolescent beds Service Level Gender	**8 hrs. $640**
C. Search Results	Create a display page that shows the results of a search. Users will be able to sort results by different elements. When user clicks on a facility name, user will be taken to a page with the facilities contact information.	**3 hrs. $240**
D. Contact Information	Create a page that displays facilities contact information. If a web page or email is available, this page will display links that can be clicked on.	**3 hrs. $240**
E. General information	May include a welcome page and instructions on using the site.	**2 hrs. $160**
F. Login Page	Create a page that facilities will use to gain access	**4 hrs.**

	to their facilities information for updates.	**$320**
G. Links	Display categorized links that may be appropriate for users and facilities. Links can be updated instantly by administrator (see overall administrative section)	**2 hrs. $160**
H. Hosting setup	Register domain name, set up webspace and make available for viewing over the internet	**2 hrs. $160**

2. Facility Administrative Screens		
Task	**Description of Work**	**Cost**
A. Login Welcome page	After facilities have logged in. This will present the facilities with options only available to them, plus a welcome screen with instructions on how to update their information	**4 hrs. $320**
B. Add/Edit/Delete Facility Information Screens	Allows facilities to control data that is being displayed to users. This section will allow facilities to enter their available beds, type of beds, contact info, demographic info, and notes or other important information. Other data elements may be collected.	**12 hrs. $960**

3. Overall Administrative Screens		
Task	**Description of Work**	**Cost**
A. Admin Login	Allow administrators to login using username and password combination.	**4 hrs. $320**
B. Add/Edit/Delete Facilities	Allows administrators to maintain access to website by facilities. This includes username and passwords by facility.	**12 hrs. $960**
C. General Information Edit	Allows administrators to update and modify Welcome pages, links and other text pages	**6 hrs. $480**

4. Database Design		
Task	**Description of Work**	**Cost**
Database	Create tables necessary to store information related to admin and facility information	**40 hrs $3200**

5. Development and Notification of Program Announcements and Training Materials		
Task	**Description of Work**	**Cost**
A. Training Manual	Development of a training manual and related materials for mailing to up to 100 acute general hospitals and free-standing psychiatric facilities. .	**$800**
B. Mailing of Program Announcements and Materials	First class mailing of training manual to up to 100 acute general hospitals and freestanding psychiatric facilities.	**$400**

6. Initial Data Entry (optional)		
Task	**Description of Work**	**Cost**
A. Enter facility contact information	In order for facilities to have access to this system, they should initially be set up in the Overall Admin section. VHI will pre-populate basic facility data	**$ 650**
B. Create Data Entry Screen	Create a screen that facilitates VHI's initial data entry of facilities.	**4 hrs $320**

7. Monthly Maintenance and Project Management		
Task	**Description of Work**	**Cost**
A. Web Hosting	Hosting on a server with multiple redundant Internet connections. Site will be hosting on Windows 2000 server with RAID I disk array. Server is guaranteed up over 99% of the time. Data will be stored on a shared SQL server. Database will be backed up 3 times a week, with information being stored for one month.	**$125/month**
B. System Support	Assist facilities in the use of the system and data entry.	**$200/month**
C. Project Management	Daily administration of system to ensure reliable operation and	**$400/month**
Total	Based upon first twelve months of operation	**$725/month or $8,700/year**

6. Estimate of Total Charges		
		Cost
Total Charges	Includes first year charges for system development and operation.	**$23,350**

Recommendations for Implementation

1. Require healthcare providers with licensed psychiatric beds to regularly submit data

2. Resource requirements:

   - Appropriate $23,350 for FY04 to Virginia Health Information for the development/implementation effort and,

   - Appropriate $8,700 for FY05 and FY06 to VHI for annual on-going maintenance

3. If this system is adopted, the feasibility of fully or partially combining this system with the reporting requirements of the "Unavailable Beds" system should be studied

Timeframe

Delivery of the final, fully operational product would be eight to ten weeks after the project start date. With the passage of the necessary appropriations and legislative code and a project start date of July 1, 2003, the system would be up and running by September 15th, 2003