VITAL RECORDS IMPROVEMENT FUND ADVISORY COMMITTEE

To The New Hampshire Department of State

- MINUTES -

Friday

October 27, 2017

-MINUTES-

Vital Records Improvement Fund Advisory Committee Meeting

October 27, 2017

Archives & Records Building
2nd Floor Conference Room
71 South Fruit Street
Concord, New Hampshire 03301-2410

COMMITTEE MEMBERS PRESENT:

Stephen M. Wurtz, State Registrar
Brian Burford, State Archivist
Tricia Piecuch, Nashua City Clerk, NHC&TC Association Appointment
Janice Bonenfant, Concord City Clerk, NHC&TC Association Appointment
Nicole Bottai, Windham Town Clerk, NHC&TC Association Appointment
Todd Rainier, Hooksett Town Clerk, NHC&TC Association Appointment
Timothy Horrigan, NH House of Representatives, Public Member, SOS Appointment
Erin Piazza, Health Information Specialist, NHHA Appointment
Peter Morin, Funeral Director Association Appointment
David Laflamme, Data User, DHHS Appointment
Bruce Riddle, Data User, DHHS Appointment
Denis Goulet, OIT CIO Appointment

COMMITTEE MEMBERS EXCUSED:

David Scanlan, Deputy Secretary of State, SOS Appointment
Thomas A. Andrew, MD, Medical Examiner Appointment
Ashley Conley, Municipal Data User, DHHS Appointment

GUESTS:

Daniel Cloutier, SOS IT
Christopher Bentzler, SOS IT
Catherine Cheney, SOS IT
Nicholl Marshall, Vital Records

1. **Call to Order, Approval of Minutes, and Introduction of Guests:**

- Ms. Tricia Piecuch called the meeting to order at 09:32 with a quorum present. Introductions of all present were made.

- Ms. Piecuch asked the Committee to review the minutes of the October 13, 2016, meeting. Mr. Brian Burford made a motion to approve the minutes the October 2016 meeting with modifications, seconded by Ms. Erin Piazza; a vote was taken and all were in favor.

- Ms. Piecuch asked the Committee to review the minutes of the April 21, 2017, meeting. Mr. Brian Burford made a motion to approve the minutes the April 2017 meeting, seconded by Mr. Denis Goulet; a vote was taken and all were in favor.

2. **VRIFAC Budget:**

- Mr. Daniel Cloutier distributed a corrected and larger-font budget. Mr. Cloutier said that at the end of September 2017, there was $3.7 million in the Fund. The Committee has recommended to the Secretary a number of projects be completed. Mr. Cloutier added that the purpose of the Fund is the betterment of the technology of vital records, so it makes sense to spend money in the Fund for that purpose. One of the items on which there is some focus is the expenditure to the state Department of Information Technology; DoIT is a great partner. DVRA has seven servers in the hosted environment of DoIT. The Committee has recommended that expenditures go to having the web servers use the DMZ created by DoIT. Mr. David Scanlan and Mr. Cloutier met with DoIT yesterday to enhance cybersecurity methodologies using what DoIT already has in place, which will involve money, although perhaps not a great amount.

- Mr. Burford countered that, although Mr. Cloutier claimed that the purpose of the Fund was the improvement of technology, the purpose of the Fund is the security and trustworthiness of the data, and technology is not the only tool used in this.

- Mr. Burford made a motion to accept the budget as presented and Mr. Todd Rainier seconded. A vote was taken; all were in favor.

3. **IT Update - SOSKB:**

- Ms. Piecuch said that she understood from Mr. Scanlan that SOSKB is to be a priority.

- Mr. Cloutier said that SOSKB stands for Secretary of State Knowledge Base, an antiquated system running on a 2003 server which is not functional. Mr. Cloutier's team finally has been able physically to turn it off and remove it from the data center. But before that happened, Mr. Cloutier's team let the website running for the town/city clerks to see their monthly invoices accept modifications to it, present what a new invoice would look like, and send that invoice to Mr. Stephen Wurtz. When Mr. Cloutier's team examined what the SOSKB invoice adjusting process was, it was taking what is anticipated to be data no longer available, so the data is populated in an old database at a data center in the annex. Because the system is so old and its vendor is no longer around, a new corporate system called QuickStart was created to perform financial functions. SOSKB is dying, and in order to bring it back for clerks to use, a new server in the data center must be utilized solely for this purpose. It can run on a new system, but holes must be punched through the firewall. Mr. Cloutier has been reluctant to get that done for that single purpose since his staff is small. But if Mr. Scanlan puts this at the top of the list, Mr. Cloutier will get it done, but Mr. Cloutier has not been given that priority yet. Hopefully SOSKB will be replaced with something else, but that replacement may not be for another six months, at which time focus will be on elections, so it may end up being twelve or eighteen months. If it is that important, it should be brought to the attention of Mr. Wurtz and Mr. Scanlan, so that they can assign Mr. Cloutier's priorities.

- Ms. Piecuch said that SOSKB is important for the town/city clerk, because how the money gets into the Fund is through this invoicing. If the clerks could rely on NHVRIN to provide accurate information, there would not be a problem. However, clerks can make errors and accordingly they must make adjustments. A year and a half to get this completed puts additional pressure on Mr. Wurtz because he receives and processes the adjustments. Mr. Cloutier clarified that SOSKB may not be the recipient of this data for much longer, but the internal process has been modified. The servers can be heard to be on a death chant, and 2003 servers are not getting security updates, so Mr. Cloutier does not want to open them up to the world.

- Ms. Piecuch asked if this has been brought to the attention of the software vendor CNSI; Mr. Cloutier answered that this was brought to the vendor who created the new financial product, which would be PCC. Mr. Cloutier's team has been working with PCC. PCC could probably create something more quickly than Mr. Cloutier could get SOSKB up and running.

- Mr. Wurtz said that this financial application should have been replaced with the previous vendor as it was so stated in that contract. Because of that, a three or four year delay resulted. Mr. Wurtz concurs that something must be done, and

with the system down, all requests come directly to him whereas previously clerks could do them on their own. DVRA is about efficiencies and automation, while SOSKB is now the opposite.

- Mr. Cloutier added that SOSKB is caught in between a number of technology changes. The Archives Division should be getting QuickStart in the next couple of months because the Archives Division is running its finances through SOSKB. Mr. Cloutier will brainstorm with his team for this problem.

- Mr. Peter Morin arrived at 09:52.

- Ms. Nicole Bottai concurs with Ms. Piecuch regarding adjustments because she has had problems with the new upgrade and within the last month, she has constantly bothered Mr. Wurtz with adjustments. Ms. Piecuch added that there are 234 city/town clerks bothering Mr. Wurtz with this same issue. Mr. Cloutier added that Mr. Wurtz is involved in that process anyway, whether it goes through a front-end website or directly to Mr. Wurtz. Ms. Bottai suggested that there could be one movement accepting all adjustments at one time; Mr. Cloutier answered that it does not exist today.

- Mr. Cloutier added that changes which clerks put on a screen are not kept anywhere. Nothing gets modified until it goes to Mr. Wurtz, who gets it to the Accounting Department, who makes the modifications within SOSKB. The front end may appear like pizzazz and flash, but the back end is ugly.

- Mr. Wurtz said because of the attention the error rate is receiving, changes were made to the NHVRIN application in order to reduce pitfalls. There are large cities which produce zero requests for adjustments, but lately many have been stumbling, creating a backlog. The original intent was for this application to run within the automated system so that the clerks can self-monitor their work.

- Mr. Cloutier said before one hits the financial module, a clerk can be given an account of work created, and have a request prior to the financial amount being posted inside the system. Right now, the financial element is being posted inside the data system, then an adjustment is done afterwards. The goal is catch it up front, not afterwards. Mr. Cloutier has a couple of ideas of what could be done.

4. **IT Update – KFI:**

- Mr. Chris Bentzler said the KFI projected started a few years ago. KFI stands for "key from image". With the help of a vendor, over one million paper records in the DVRA vault were scanned into an electronic form. Working with CNSI, DVRA was able to clean the data as much as possible until importing them into

the system. As part of the process, DVRA had identified 142 items which had to be fixed once the data was in the system; only 27 issues remain. Some issues involved only one record each, but other issues become massive projects to fix thousands of records. For one edit, more than 100,000 records were resolved. As new issues are identified, it must be determined if the issue can be resolved through the ODAR process, which involves the database administrator and DoIT. One issue is facilities identified as "Hosp" which can stand for "hospital" or "hospice".

- Ms. Piecuch asked if this editing process can be segregated by birth, marriage, and death; Mr. Bentzler answered in the affirmative. Mr. Bentzler said the process can be further refined by other parameters.

- Mr. Wurtz said that Mr. Nicholl Marshall is identifying issues. Some issues are huge to the point that they can affect the legality of the document, and those are the one which should be tackled first. Many of those require research from DVRA staff. Mr. Wurtz met with the database administrator yesterday and the review continues. One of the main messages given to the vendor was "do not interpret if you can not read it". For those records, DVRA had to go back to the image of that record and determine what the record stated. Mr. Wurtz believes the majority of the legal issues are out of the way.

- Mr. Cloutier explained for Mr. Goulet that every vital record issued by DVRA is done electronically. Such issuance is done from the data which is placed on a form, then a seal is placed on the form. Many of the records from decades ago were handwritten. DVRA worked with DoIT because that data is sitting in the HHS Oracle system. The data is migrated slowly from Oracle to SQL which the Department of State is hosting. For an old record that was not in the system, a customer had to go to the town or city where the record existed, the clerk in that town or city would type the record into the system, issue the record, and the data would then held in a local table, then the record would go to Mr. Wurtz for DVRA to verify the record.

- Ms. Piecuch asked about birth records from 1949 and 1950; Mr. Wurtz answered that DVRA is still keying those records. Ms. Piecuch explained that birth records from those two years were not part of the KFI project because they were in leather bound books and DVRA did not want to break the binding.

5. **IT Update – NHVRINWeb 2.0 Update:**

- Mr. Bentzler said the NHVRINWeb product, which sat on an older database with an Oracle back-end and a 2003 webserver front-end, was migrated from an Oracle

back-end to a SQL back-end which is maintained at the Department of State. The front-end has been upgraded so that it runs on a virtual environment. Some features have been added, such as password recoveries. Current population data is being obtained, and DVRA's vendor is working with another state agency to capture that data. The next module is expected to have DVRA put population data into NHVRINWeb rather than have the vendor do it.

- Dr. David Laflamme asked what is the smallest geography of the population data used in NHVRINWeb; Mr. Marshall answered that the smallest geography used is city and town.

- Mr. Bentzler added that NHVRINWeb is a public-facing website which allows anyone to create an account and look up any information for statistics, which does not include any identifiable personal information, for births, deaths, marriages, and divorces.

- Mr. Wurtz said that NHVRINWeb is good for school districts to project what enrollment will be years from now. Mr. Wurtz observed that NHVRINWeb is heavily utilized by the research community; the password reset was a tremendous burden on DVRA and Mr. Wurtz noticed the hundreds and thousands of e-mail and RP addresses hitting the database. Mr. Wurtz said NHVRINWeb saves time because the state Department of Health & Human Services is not getting telephone calls requesting such data; Dr. Laflamme countered that his department still gets such requests. Mr. Wurtz praised NHVRINWeb as a great tool because it utilizes data in a confidential way to serve the needs of the research community, such as a nursing student who paper is due the next business day. Mr. Wurtz thanked the Committee for providing the opportunity to update NHVRINWeb.

6. **IT Update – Virtual Server Project:**

- Mr. Cloutier said under the previous vendor, Mr. Cloutier's team created some virtual servers. DoIT created seven servers available for DVRA. The old NHVRIN system had HP servers running 2003. But with the vendor's help and Mr. Cloutier's help, they were turned in 2012 servers, and software was loaded on to those servers. Once that migration occurred, NHVRIN users had better and more reliable load-balanced services.

- Mr. Bentzler said it was part of a bigger project to take all of DVRA's servers, which were physical 2003 boxes on the front end, and migrate them to a much more secure, more improved platform. Both NHVRIN and NHVRINWeb were part of that project. There are two virtual servers which run NHVRIN in the production environment, similar to the previous physical servers. The old servers

had one gigabyte of RAM, but the two new servers have eight gigabytes of RAM with a much more powerful processor. Any downtimes seen, which have been minimal, were not due to server migration; sometimes they might be due to an issue with the database back-end issue or a proxy server. All of it is managed and maintained by multiple services, so any problem will get fixed immediately. There is also a virtual environment which houses the development, UAT, and training environments; that was taken away from a 2003 server, and now that connection back to the database server, which is still Oracle, is managed and maintained in-house. The eCOD application is also in this new virtual environment. DVRA is 100% free of the old physical 2003 servers. The next generation of NHVRIN will also be incorporated into the virtual environment.

7. **IT Update – VR Search Program:**

- Mr. Bentzler said the old R-based program has gone away. It housed the older records back to 1948 and DVRA would use it to look up old records. As personal computers were upgraded to newer versions of Windows, those applications no longer worked because they were 16-bit programs working in 64-bit environments. Trying to virtualize them and getting them to working in Hyper-V with Windows 10 became problematic. The database administrator, Mr. Jeff King, converted the program to a .net front-end client connecting to a back-end SQL server. Now the program runs on DVRA's desktops like any other application. Mr. Wurtz emphasized that this is limited to state staff only, and it is an extra tool to find a record if the record is not in NHVRIN.

- Mr. Cloutier noted that the program is used less often because of the KFI project. Ms. Piecuch asked if the program is still needed; Mr. Marshall noted that he used it earlier that morning. Mr. Wurtz added that tools are almost never removed.

- Mr. Bentzler added that previously, getting the program to work was like booting up a DOS machine because it would calculate a computer's memory and go into a DOS application. Dr. Bruce Riddle and Mr. Bentzler praised Mr. King's work on this program. Mr. Cloutier said that working with R-base and conversion of that data is difficult. Mr. Bentzler added that the data was found to be the same during testing between the old and new versions, and the staff members of DVRA at the front counter are always using it as they deal with customers.

8. **IT Update – Future of Legacy Record:**

- Mr. Bentzler had talked to Mr. Wurtz about this matter yesterday. This matter refers to performing the KFI project for marriage records earlier than 1960 and death records earlier than 1965. Mr. Wurtz added that the purpose of the original

KFI project was to support another project from the CDC and NAPHSIS, namely having data available for verifications. DVRA has typed paper documents going back to 1948 which would be relatively easy for the vendor to do the same project. Mr. Wurtz would not like to go further back than that because the handwritten cards will involve much interpretation of handwriting.

- Mr. Cloutier asked how much this would cost; Mr. Wurtz answered it depends on how many records there are, but if DVRA has the approval of the Committee, DVRA will pursue it. Ms. Piecuch recommended discovering how many such records there are, and obtain a price for the next meeting of the Committee.

- Ms. Piecuch added that her staff is still issuing birth records from the 1920's and would like the project to include births going back to 1900. Ms. Janice Bonenfant said the problem is that clerks back then did not record as many data elements which are required in NHVRIN now. Mr. Wurtz said the difference between a typed paper record and an old paper record is significant because older paper records are handwritten cards, which results in more validation issues being encountered, but if it is the will of the Committee, a price on those older records can be obtained also. Mr. Burford suggested it might be worth investigating into what it might cost, so that it can be determined if it is feasible. Mr. Wurtz added that, at the start of the KFI project, the different formats for capturing the information over the years had to be broken out, especially when a typed paper copy is different from the free-flow of handwritten cards.

9. IT Update – STEVE 2.0 CDC Bi-Directional Automation:

- Mr. Cloutier explained that STEVE stands for the State & Territorial Exchange of Vital Events. STEVE is a communication device primarily with the CDC. The CDC buys data. The CDC claimed that they could receive data as often as DVRA could send data, so DVRA sent it twice per day. Mr. Wurtz added that New Hampshire was first in the nation to automate such a process. Mr. Cloutier continued that the CDC choked on DVRA data. Due to a change of the CDC's vendors, DVRA was forced to return to a manual process. Earlier this week, DVRA received a telephone call inviting DVRA to participate in a new automation.

- Mr. Bentzler said STEVE 2.0 has an interface called the thin client, which is an interface designed to run on a system and allow bi-directional traffic. Now, DVRA sends data to the CDC, but DVRA does not receive it back automatically through this process. But the new system will allow DVRA to send and receive data through an automated procedure. But when the CDC's new vendor was hired, the new vendor said everything would be done all at once, but after testing

for a few months, it was discovered that it was not possible. Now DVRA is at a point where DVRA can go forward with this bi-directional client. A meeting with CDC's new vendor will occur next week to understand how it is going to work.

- Mr. Wurtz said DVRA is trying to recover technology that DVRA had in place but lost ten months ago with the transition to STEVE 2.0. The bi-directional traffic allows DVRA to send mortality records to the CDC and those records returned to DVRA coded. But the manual back and forth could take four months. DVRA had a proposal to the CDC to pilot a bi-direction project where DVRA sends death records the CDC's automated system and the records are returned to DVRA because the CDC claims that about eighty percent of death records can be coded automatically and returned. The project was not funded for political reasons. This affects not only the data to the CDC but data to other states. A major hospital for Vermonters is Dartmouth-Hitchcock Medical Center in Lebanon, New Hampshire, thus Vermont relies heavily on New Hampshire data. STEVE 2.0 will greatly increase interstate traffic. Vermont now is unable to perform this in an automated fashion because Vermont still requires New Hampshire to send paper for Vermont to key. As DVRA dedicates time and resources to automate through STEVE 2.0, programs will benefit because out-of-state events will be deposited directly into the database.

- Dr. Laflamme said that it makes a huge difference because the state Division of Public Health is interested in what happens to all New Hampshire residents. Roughly 9% of resident births occur out-of-state, therefore that exchange between states in the STEVE system is really important. For example, there is a surveillance program called PRAMS which stands for Pregnancy Risk Assessment Monitoring Survey, and Dr. Laflamme takes a sample every month for live births in the previous two to six months. Ideally, one would like to capture a birth in a sample only two months later, but now out-of-state events are not added until several months later. Folks tend to go out of state for births for two reasons: because it is convenient especially for the population-dense southern tier, and because of high-risk pregnancy. The risk profile for high-risk births is a little different, so Dr. Laflamme wants those sampled also. For Dr. Laflamme's division to benefit the most, New Hampshire's three surrounding states should use the system also.

- Mr. Wurtz said that Massachusetts has come on board in the last few months with their transmission of information, but the fact that DVRA is unable to drop that information into the database, DVRA needs to drop to paper and then key. This has been a problem for a while, especially for the database administrator. It requires a tremendous amount of manual intervention to make this all happen, and

there is no reason for that in this day and age. DVRA had solved this problem for the nation a year ago and the CDC chose not to heed DVRA's solution.

- Dr. Laflamme asked if there was a timeline on the implementation; Mr. Cloutier said supposedly the CDC has something in place and tested, thus DVRA is ready for them and the infrastructure is in place. Mr. Bentzler said the same infrastructure for STEVE 1.0 could be used, but the challenge is what the client looks like and what needs to be opened up because everything is behind a firewall. Mr. Cloutier added that it could happen in November or before the end of the year, but it depends on a number of items.

- Mr. Goulet departed at 10:32.

10. IT Update – NHVRIN*plus*:

- Mr. Cloutier said that NHVRIN*plus* is the name of the new NHVRIN which is coming. NHVRIN*plus* may have a new look and a new feel. The big thing being addressed now is the data security module, which will have very secure capabilities of being able to authenticate into the system and to reset passwords automatically using specific guidelines. It has not yet been locked down to allow certain IP addresses into it, but that is a possibility. It will have mobilization.

- Ms. Catherine Cheney said that chair asked during the previous meeting of the Committee about the technology refresh. The database will be moving from Oracle to SQL which will provide better control of the situation working with DoIT. A specific concern was if NHVRIN users get any more out of that, and NHVRIN users indeed do get more out of it. DVRA has gone through the requirements phase of the document for the death module with a robust security front-end, which will help all users and protect the data. DVRA will identify town/city clerks who are in charge of their staffs so that those clerks can tell DVRA who is authorized to use the system and see all transactions in the town/city and be able to perform multiple financial transactions. There are many back-end matters being addressed as the data is converted. In the previous meeting of the Committee, HL7 was addressed. The requirements state that the new vital records system will be HL7 and FHIR compliant. At the time, DVRA did not know what that meant, but DVRA has met indirectly with the author of HL7. The author of FHIR is Mr. Grahame Grieve, who is on the HL7 committee. At first, the vendor suggested that they would complete a certain percentage of the compliance, but no one understood what that meant at that time. In the medical profession, it is a standard for how data interacts. The vendor asked if there was anyone at FHIR or HL7 whom the vendor could copy. DVRA talked to Mr. Chuck Sirc at the CDC, to personnel at Georgia Tech, and to Ms. Paula Braun

who is the lead on the death worm project. For death certificates, there were no standards or framework. The vendor has bought a seat at the HL7 committee, which is like an ANSI-standard for computing and data modeling for the health profession. DVRA is bringing its model to the HL7 board, because even if DVRA said it was HL7 compliant and wrote extensions similar to other vendors, DVRA would not be compliant if a standard was formed after the platform was developed. Thus DVRA's system is being used as the model. DVRA will probably not ask the Committee for money to be compliant with other agencies. A mission statement reads in part: to maximize conformity of New Hampshire's applications to applicable FHIR standards for general health care and specific death applications, minimizing extensions where possible, achieve through coordinated technical design and by the review of hospital enhancement of other death white papers, prototypes and applications; these implementations utilizing best practices are expected ultimately to be submitted to the HL7 board for incorporation into the FHIR standard.

- Mr. Wurtz said DVRA has pushed the vendor from the beginning that this is the direction in which New Hampshire wanted to go. The challenge is writing a program today which still has value a decade from now. What has been seen is that a program has value for two years and then it becomes obsolete. Mr. Wurtz performed a lot of research and passed it on to the vendor, who also performed a lot of research. For the vendor to buy a place at the HL7 committee is huge, because the vendor has bought into the whole process. Eighty percent of the medical community is using HL7, but the FHIR enhancements are different. For the HL7 committee to ask New Hampshire for the naming criteria of data elements so that they can be adopted as the standard is huge. It is not any different for DVRA because DVRA has done it, but DVRA has the ear of the right people and the trust of the right people. A teleconference was held about a month ago and DVRA committed to sharing code so that no one is duplicating work. It validates that the direction DVRA is going is the true direction for the future. Mr. Wurtz, Ms. Cheney, and Mr. Bentzler participated in a high-level CDC teleconference earlier this week addressing conformity and inoperability between applications. New Hampshire was not mentioned because New Hampshire either had done what was mentioned or was going in that direction, whereas other people in the teleconference probably thought about the work which has yet to be done. Good things will be heard about HL7 standards, FHIR compliance, Bootstrap technology, and JSON because they are being incorporated into NHVRIN*plus*. Other states will follow in New Hampshire's direction. DVRA has financial support from the CDC and commitment from the right people at the CDC.

- Ms. Cheney said a concern might be if this will hold up the project, but it will not. DVRA is performing what the industry calls agile development, which means that vendor has a team working on the user interface, a team working on the database, and Ms. Cheney is in possession of project spreadsheets. The target for the death module is the end of May and the target for the security module is the end of this year. The security module deadline was pushed out a little because DVRA felt other items should be place in it, such as expiration dates for users. NHVRIN users should have expiration dates because funeral directors are licensed for two years. In future, funeral directors will get a notice from NHVRIN indicating a license will expire and DVRA should be contacted.

- Mr. Cloutier added that the expiration notice will be given for all NHVRIN users, including town/city clerks, similar to ElectioNet. The security module will be the entrance to NHVRIN and to NHVRIN*plus*. If a user click on the death module, it will be NHVRIN*plus* death, but if a user click on the birth module, it will be NHVRIN birth; a user will not have to remember two different websites. The plan is to go seamlessly with the new methodologies of the new security module.

- Ms. Cheney said DVRA met with the vendor last night regarding database design and DVRA stressed that the transition must be seamless. NHVRINplus now shows large icons with pictures, and perhaps a protoptye can be brought to the next meeting of the Committee. Mr. Bentzler added that NHVRIN*plus* will be browser-agnostic, including IE, Firefox, Chrome, Safari, and it will operate on a tablet as well as a computer. Mr. Cloutier added that there will be a way in the back-end to disallow IP addresses from off-shore.

- Dr. Riddle asked if DoIT will be involved; Mr. Cloutier, Ms. Cheney, and Mr. Bentzler answered in the negative because the SQL database will be housed with the Department of State. Dr. Riddle asked if penetration analysis will be performed; Mr. Cloutier answered that it is part of his team's cybersecurity strategies. Mr. Bentzler added that when NHVRIN moved into a new server environment, there were some tasks performed to satisfy DoIT's penetration concerns, even though it was the same application. Mr. Cloutier added one can think of it as similar to the PCI level of penetration testing, and Mr. Cloutier's team is doing what they can to secure, and make more secure, the data.

- Dr. Riddle said it is amazing how many times per hour data at Dartmouth is hit. Mr. Cloutier responded that is usually at the edge. Mr. Cloutier continued that DVRA's defense on the edge is still DoIT, which is why DoIT is still a valuable partner, and DVRA has its own firewall at its edge. For example, a Wi-Fi connection WPA2 may not be as secure as one had thought, so a concern now is

using a wireless tablet using WPA2 to get into NHVRIN. Mr. Cloutier's team and Mr. Wurtz's team have spent much time on security.

- Ms. Piecuch asked if the security portion will be finished at the end of the year; Ms. Cheney responded that the target is still set for December 17, but because of the additional items requested, it may be after the start of the new year. Ms. Piecuch wanted to ensure that all NHVRIN users would be contacted about this topic; Mr. Cloutier responded that discussion would not be held about making the security module the primary entrance to the system until after the death module is completed.

11. IT Update – Situational Surveillance:

- Ms. Cheney said that Situational Surveillance is up and running, although it is not being utilized now because there is no situation in New Hampshire. The CDC had contacted DVRA for a demonstration of the VIEWS2 package, of which New Hampshire is at the forefront again. The CDC is aggressively pursuing the idea to make Situational Surveillance part of the VIEWS2 package. DVRA received a message from Dr. Laflamme asking to test through a hospital. Ms. Cheney suggested to the CDC to test it by areas and CDC was favorable to it. States want their own jurisdiction but it is going to be a national product. For example, a question could be asked to one part of New Hampshire while a related question could be asked in a different part of New Hampshire. Counties or even specific neighborhoods could be defined as different areas.

- Dr. Laflamme said that for him, it is about choosing something that triggers the Situational Surveillance questions. He had a need to perform it by hospital, but it could be done by ZIP code or by birth weight. It can become very useful because if a public health concern is a particular matter, such as birth weight or gestational age, a question is ready to be asked. Dr. Laflamme wants to test the Situational Surveillance functionality, but did not want to test it on Zika, which was the impetus for developing Situational Surveillance, because length of the infant and head circumference were added to the birth record permanently. So Dr. Laflamme thought Situational Surveillance could be tested on neo-natal abstinence syndrome, which is the case of infants going through withdrawal as a result of drug use by the mother. During the discussion about that, it was realized that Situational Surveillance now is an all-or-nothing thing, so if the question is wrong and it goes to all hospital, it becomes a waste of time for some people. Dr. Laflamme is working with a resident at Dartmouth who wants to pilot-test on paper, but that slows down Situational Surveillance. Being able to test Situational Surveillance by hospital and fine-tuning questions so that the desired data quality is obtained will be useful before turning Situational Surveillance on statewide.

- Ms. Cheney said the birthweight criterion might be a problem for a multiple birth situation and asked Dr. Laflamme if he would want it in that situation; Dr. Laflamme answered that this is why he wanted to construct the ability to select a number of fields by Boolean criteria.

- Ms. Cheney said that users who will be asked Situational Surveillance questions are birth registrars for births, funeral directors for death, and physicians also for death. Up to two questions per user may be asked.

- Mr. Wurtz asked Dr. Laflamme if the vendor was sent the information Dr. Laflamme had previously mentioned; Dr. Laflamme responded that they focused on just hospitals. Mr. Wurtz added that Dr. Laflamme took Mr. Wurtz's idea and made it greater. Dr. Laflamme suggested that the potential for quality improvement should be mentioned in regards to Situational Surveillance. This is because nationally there are learning collaboratives working on various public health issues often times at the state level and different states will talk to each other about what they are doing, but sometimes it requires collecting a certain piece of information over time. There has been work with collecting the right data at the right time, and Situational Surveillance could be useful for that.

- Mr. Wurtz said because DVRA has such a good rapport with the CDC and because DVRA has the ear of the CDC. New Hampshire is not opposed to creating an unsolicited proposal to the CDC for another CDC-funded initiative above and beyond what was identified for the proposal already sent to the vendor for which Dr. Laflamme is trying to get funding.

- Mr. Horrigan asked if there should be a catastrophe in New Hampshire, could Situational Surveillance be rolled out in the short term; Mr. Wurtz responded in the affirmative.

12. IT Update – eCOD Mobile App:

- Ms. Cheney said eCOD was deployed in July. Dr. Jennie Duval, the acting Chief Medical Examiner, and Ms. Sue Watkins, one of the Assistant Deputy Medical Examiners, are using eCOD. Dr. Duval and Ms. Watkins are pronouncing and certifying deaths on their devices. As of today, nineteen deaths were performed on eCOD – two were only pronouncements, and seventeen were both pronouncement and certification. Now Dartmouth is asking about eCOD. Funeral directors are pleased with eCOD. Mr. Wurtz had a really good idea in eCOD. Now ADMEs can get their jobs done more easily. As of the last meeting of the Committee, eleven states had participated in demonstrations. Vendors and the CDC were also sitting in on these demonstrations. Since then, six more states

had participated in demonstrations. The CDC extended the contract from the end of August to the end of February.

- Mr. Wurtz said that the National electronic Certification Of Death, also called "NeCOD", is what will be used for demonstrations to other jurisdictions. New Hampshire will be just a player within NeCOD because when one first logs into the NeCOD application, one must select the state and then the application will populate the appropriate questions. Any major deployments of eCOD have been purposely held back because not only is the Office of the Chief Medical Examiner willing to use eCOD, but the OCME is also willing to critique eCOD. DVRA still tries to make eCOD the most robust application of its kind. What was deployed in the last build of eCOD was the pronouncer getting an electronic mail message summarizing what the pronouncer just completed, and the certifier similarly getting an electronic mail message summarizing what the certifier just completed. National exposure has been given to eCOD. Little details, which were addressed in cooperation with OCME, have helped in the goal to go national with eCOD.

- Mr. Bentzler said that, after visiting with the OCME, a new role was created in NHVRIN defined just for eCOD, although it has not been deployed yet, namely the strictly pronouncing role by a Registered Nurse. There are scenarios where the death record can go from a physician to the OCME because of the potential for injury, and the Medical Examiner can review the case and determined it is not an injury, sending it back to the physician to certify. The OCME still receives a receipt indicating that some activity has occurred.

- Dr. Riddle asked if the receipts have names; Ms. Cheney answered that DVRA has just started looking at that issue. As of now, the receipts say that the pronouncer or certifier performed a certain action on a decedent who died at a certain day in a certain county and that the pronouncer or certifier is the steward of such information. The Medical Examiner wanted to add injury information. The vendor told DVRA this matter required further review, so DVRA reviewed the privacy laws. The OCME is welcome to have this information but the issue was that it was an unsecured device, as was discovered with WPA2. Right now, the matter of receipts is on hold. Dr. Duval told Ms. Cheney that eCOD was good but Dr. Duval wants to access more information. So in NHVRIN, DVRA created a report of incomplete records where Dr. Duval could see all injury information from within the NHVRIN application.

- Dr. Riddle said that in his cancer surveillance work, concerns of privacy are going up rapidly. His team is not allowed to put the name of a patient in an electronic mail message, which is the national standard, and his team is not allowed to use FTP. Mr. Cloutier clarified that it is SFPT. Mr. Cloutier asked if that is because

of the depository; Dr. Riddle answered that someone on his committee did not like it. Mr. Cloutier expressed his desire to understand such reasoning because the connection, the data stream, and the repository are secure. Dr. Riddle said that someone had put out a weak implementation. Mr. Cloutier suspects that is because the log-in ID and password were sent in the same electronic mail message on an unencrypted open connection to the user. Mr. Wurtz said that those concerns are huge. Ms. Cheney said that is why it was taken off the agenda so that everyone wants to think this through and ensure the users get what they need. Mr. Benztler said while they were expecting feedback concerning what could be a potential issue, there was no response from the OCME that there was a problem, but that the OCME wanted more. Ms. Cheney said that is why such meetings take place.

- Dr. Riddle says how to get a user name and password to a user in a secure fashion is a problem everyone faces. People on Dr. Riddle's campus forward messages three or four times so one has no idea where such electronic mail messages are going or what server in which the messages are. One advantage that NHVRIN administrators have is that almost everyone who is going to use the application to certify has to be licensed, so a website for licensed people could be built, and licensed people must verify their credentials on that website and then pick up a user ID and password. Mr. Cloutier said discussions into the security module have not gone that far yet, although the initial password is not created by NHVRIN administrators but by a user by authenticating additional information which the user provided during the registration process to a separate system.

- Dr. Riddle said that some places with which his group has working relationships, there are two-factor authentications, so one must use a cell phone. Either the application sends a verification to one's cell phone or sends a text whereupon one has ninety seconds to respond. As one security analyst argues, almost all of the key questions' answers are public on the internet now. Ms. Cheney said that DVRA is letting users pick how to reset a password whether a security code to their devices or electronic mail. For example, if a town/city clerk was to register, the town/city clerk would get an e-mail and a NHVRIN administrator would get an e-mail stating user ID, but the password would be sent in a second e-mail just to the user and NHVRIN administrator can limit the time to respond. Ms. Piecuch noted that this was similar to ElectioNet; Mr. Cloutier added that it was similar but tighter.

- Dr. Riddle said that patient's name should not be in an e-mail even though the death may be published in a newspaper a few days after the death. Mr. Bentzler said the publication was a decision somebody else made. Ms. Cheney looked at

the relevant laws such as PHI, and one could make the argument of stating that such e-mail may be between authorized parties, but a security officer reminded her that a breech incurs a five thousand dollar fine. Mr. Cloutier said that place a stamp on a message and postmarking it through regular mail can keep it secure. Dr. Riddle said anyone who dies at a Veterans Administration facility is covered by another hunk of federal law. Ms. Cheney suggested that a receipt could say a pronouncer pronounced an event which occurred at a certain place at a certain time; Ms. Piazza said that would be better because a patient's name is still protected health information. Mr. Horrigan said that survivors, for various reasons, do not want necessarily to announce that their loved one have expired right away. Mr. Cloutier said a code could be attached to the transaction and send the code, which is indifferent to anyone who sees it unless that person has access to NHVRIN, in an electronic mail message.

- Mr. Wurtz said that this issue is not being postponed but the people involved are addressing it now, despite the complexity of the issue. The more the issue is researched, the more problems are discovered. The last thing anyone wants to do is to violate someone's confidentiality.

- Dr. Riddle said there are a couple of fringe groups who certify to which special attention should be paid. Resident doctors have temporary licenses in New Hampshire since there are here for only three to four months. They certify but then they leave the state and can not be found anywhere. Many facilities now are using contract physicians and contract nurses, but they often have temporary licenses instead of permanent New Hampshire licenses. Nurse practitioners are also contracted in and out of facilities across state boundaries. Many times such people certify death records and those certifiers can not be found anywhere; all Dr. Riddle's team has is a name, but no address or telephone number to ask further questions. Mr. Cloutier asked if they need not register with a board; Dr. Riddle answered some residents are registered with the New Hampshire Board of Physicians with a temporary license, but they seem to float in and out. Nurse Practitioners and Physician Assistants are very hard to track down. A giant step forward in the security module would be to combine all these boards and have one very robust license application so one can cross-check all this.

- Ms. Cheney said DVRA is checking everything. To get into NHVRIN, DVRA created three different roles, even though they are doing the same function internally in NHVRIN, because DVRA wanted to identify who was in these roles. One role is Physician Out-Of-State, which identifies everyone Dr. Riddle mentioned. Another role is Physician Other, such as *locum tenens*, residents, and the temporary people, and they will have expiration dates and will be kept

separate so that DVRA can police them more easily. Mr. Cloutier asked if pronouncements and certifications still occur on paper; Ms. Cheney answered in the affirmative. Mr. Cloutier said if pronouncements and certification do occur on paper all the time, the DVRA can not control the pronouncer of certifier, and neither may be a user of NHVRIN; Mr. Wurtz replied that the law says that they shall use an automated system to pronounce and certify.

- Mr. Cloutier asked if there is a nexus between being not allowed to pronounce or certify unless one has an account in NHVRIN; Mr. Wurtz answered that is where it is headed. It will be great when no one will pronounce or certify unless one has an account in NHVRIN or eCOD because that will help with enforcement. If a physician from out of state is brought for the weekend and that physician is looking for paper, eventually that physician will be told New Hampshire deaths are not pronounced or certified on paper. The OCME brings in contracted medical examiners on weekends and holidays, and it is difficult to find them when DVRA queries them. Vermont and Massachusetts are going away from paper. Once it becomes clear that one may not pronounce and certify in New Hampshire unless one it utilizing an electronic product, then it is possible to stop the temporary intern who comes across the border to certify a death. Mr. Cloutier said it might be too early to ask the question "How does that make the State Archivist feel?"

- Ms. Piazza asked could a provider, not an ADME, provide their NPI number when registering; Mr. Wurtz answered that such an example is easy because no one goes onto NHVRIN as a health professional without validating one's license, which DVRA validates against a state database.

- Ms. Cheney added that there was a problem last night going over the database design. The certifier table may or may not be NHVRIN users. But if a funeral director using NHVRIN wishes to enter into NHVRIN who is the certifier of a particular death, the funeral director could pick up a certifier who is not a registered NHVRIN user. Therefore, DVRA and the vendor would like to remove this table which includes certifiers who may not be validated NHVRIN users. Mr. Wurtz added that a funeral director would not know if a certifier is real or not, which is the problem because the funeral director is playing the role of a data entry clerk on behalf of a physician. In future, if one is not a registered user, one will not certify that death but someone else will have to certify that death for the unregistered user. Ms. Piecuch observed funeral directors are waiting for the certifier to sign off on deaths; Mr. Morin added that when a funeral director later tries to find the certifier, the certifier can not be found. Ms. Cheney said there should be a comparison between who is in NHVRIN as a certifier and who is on

this other table, and whoever is on this other table that is not a NHVRIN user should be contacted. Ms. Piecuch added they should not be allowed to certify under state statute because they are not electronically registered anywhere. Mr. Wurtz said that this is where the CEOs of the hospital come in, because if one is going to have privileges in that hospital and certify a death, one best be in compliance. Mr. Morin said if this was something where the hospital could be asked for help, particularly the hospitals in border towns, when they bring contracted physicians to a hospital so that the contracted physicians can get into the system. Ms. Piazza suggested that it could be made part of their credentialing process. Ms. Piazza's facility utilizes *locum tenens* all the time, for example there is one doctor in that facility from New Mexico. Mr. Wurtz said that is the discussion which is not held because not everyone quite understands; the topic has been addressed many times in the last couple of months and everyone is trying to understand the impact to the security and registration of these events.

- Mr. Horrigan asked what is done when the practitioner is one of the holdovers who refuses; Ms. Piazza said if it is part of state statute or regulations, then it can put into the medical staff bylaws and the physicians are held accountable.

- Dr. Laflamme said the Committee should think about what the internet goes away or there is a problem with the technology and the ability quickly to shift back to paper in such an emergency; Ms. Piazza answered that her facility has downtime procedures, including going back to paper. Dr. Laflamme said whatever requirement has to be flexible enough to allow for that kind of situation; Mr. Horrigan said that has been happened in Puerto Rico and the US Virgin Islands. Mr. Wurtz said that was part of the Y2K scenario put in place and that DVRA will have the responsibility to have on the shelf the paper to do what is done electronically. Ms. Piazza said that when a new provider arrives, there is a credentialing process and payer enrollment, so the person who does payer enrollment can apply for NHVRIN access for the new provider.

- Dr. Riddle said when a license number is captured, the state issuing the license must also be captured. When Dr. Riddle performs a linkage between the license number of a death certificate and the New Hampshire state database, fifteen percent of those records do not link, and many of them turn out to be a New Hampshire physician but one digit on the death certificate is incorrect. Dr. Riddle said it would be easier to know who is the out-of-state physician. Mr. Wurtz said the paper copy says New Hampshire license only for the physician's license number, but the NHVRIN*plus* system is expected to alleviate some of those problems. Mr. Bentzler asked if Dr. Riddle performs a manual look-up; Dr. Riddle answer that he links them electronically with an Excel spreadsheet sent by

the Board of Medicine. Mr. Bentzler said that is was thinking about the Online Verification System (OVS) and how it verifies. Mr. Cloutier said that his team receives files from the Department of Motor Vehicles for ElectioNet to check driver's license numbers every night pursuant to the law. Dr. Riddle said that twenty percent of people who certify are not in that database, and there appears to be no database for those people. Mr. Cloutier compared this to voter data, which is not the state's data but rather the local data and the state is responsible for security of that data. Similarly, the Board of Medicine data belongs to the Board of Medicine. Whereas the lists of town/city clerks and polling places are public data, perhaps this might be public data. Dr. Riddle said the type of license, such as physician or nurse or PA, must also be captured. Dr. Riddle also noticed the titles are not standardized, and some people are sensitive if one's title is wrong.

- Ms. Cheney distributed the document presented for the meeting in Memphis regarding the NeCOD product.

13. Digital Preservation:

- Mr. Burford distributed documents printed by the Council of State Archivists.

- Mr. Burford said that he senses a great deal of excitement and enthusiasm about being able to create tools resolving issues of security and validation. Mr. Burford shares this palpable excitement. While discussing the purpose of the Fund, Mr. Burford had reminded Mr. Cloutier that technology is a tool in the Fund's purpose. Mr. Burford had prepared what he wanted to say on a computer because it is a great tool which allows him to go back and make corrections, but that changeability is also a concern. While a computer is a wonderful tool, it is also a vulnerability. One of the missions for which the State Archives was created is to instill in the public a trust in the records which document what government has done. Mr. Burford's purpose for being on the Committee is to bring that same sensibility to the Committee. For example, the birthers do not seem to trust Mr. Obama's birth certificate; somehow they figure there was a conspiracy to change information. Mr. Burford's purpose as an archivist is to inspire some degree of confidence, even in a birther who feels there is a conspiracy. So the question which arises is that there is a need to create, manage, preserve, and access vital records, but it raises certain core issues. Mr. Burford asked the following questions. What is a record? What are the core characteristics of a trustworthy record? How, if at all, is a record different from data? There has been discussion about moving all kinds of data around, and being able to upload and download and bidirectional traffic. But where is that record within that data? Figuring out that very fine line is significant. When does data become a record? How does an institution manage, preserve, and allow access to trustworthy digital records?

What attributes in an electronic record constitute the record? What attributes are critical to preserving? How are they vulnerable? How does anyone minimize the risks to those vulnerabilities? Where is the official birth record? Is the official birth record in several critical fields on the NHVRIN database? As the digital infrastructure and fundamental technology changes, what will the effect of those changes be on the digital or electronic record? Mr. Burford feels that several conditions for a trustworthy record need to be met: fixity, security, and organization and ability to retrieve. The term "record" has several definitions in the statutes. There are all kinds of records, such as state records, governmental records, and vital records. Where within the NVHRIN database is the vital record? A record is committing information to a fixed environment that has information about a decision, an action, an event or a policy, so that a person can go back to it and determine what it was, although it may have been changed later. How and when it was changed can also be determined. If a constituent asks for a birth certificate, the constituent goes to a town clerk, the town clerk probably typed or wrote a certificate with information from a ledger book, and handed that copy to the constituent, who accepted that as a copy of the true record. The constituent would accept it as the true record because one can go back to the original and compare it with the original information to see that it is the same information. That ability to compare back to the original is not inherent in digital records. When one looks at a digital record, it is just ones and zeros. A layperson can not go back and verify that the information really does reflect what used to be on that record.

- Ms. Piecuch disagreed with Mr. Burford's last sentence because even on a digital record now, any corrections are still paper, which is not digital. So the paper back-up exists, and the record will say what correction was done and when the correction was done. Mr. Burford asked what the record is. Is the record the paper? Is the record the database? Mr. Cloutier answered there are ones and zeros sitting in a database which say that was what it once was. Mr. Cloutier asked how can it proven that the ones and zeros which exist today were the ones and zeros which were created on the day it was created? It is possible that something could have happened to the data which does not have a transaction associated with it. The world is not pure, and an unknown anomaly could have turned a one into a zero.

- Ms. Piecuch did not know if the hospital used paper for birth records; Mr. Piazza and Mr. Wurtz said paper worksheets are still used and retained permanently. Mr. Cloutier asked if DVRA receives those paper worksheets; Mr. Wurtz answered in the negative. Mr. Cloutier asked if the paper worksheets were the birth record; Mr. Wurtz answered that the worksheets form the birth data and the record itself

is electronically produced by the application from data elements captured on that worksheet. Ms. Piecuch added that once a file number has been issued is when the record is a record. Mr. Wurtz said the most unique thing on that record is the state file number. Mr. Cloutier said that DVRA does not keep a copy of the paper but keeps the data digitally. Ms. Piecuch said that if any change is made on that record, it will be notated on that record; Mr. Cloutier adds only if the happy path, defined as the software did what the software was supposed to do, was followed. Mr. Cloutier added there are a number of people in this room who can change a record right now.

- Mr. Burford said there has been discussion about moving from Oracle to SQL. When moving from Oracle to SQL, one is changing the ones and zeros. Mr. Cloutier counters that such action is not changing them but moving them. Mr. Burford responded that it is changing the rules by which they are interpreted; therefore there will be changes to ones and zeros to meet the new rules. Mr. Cloutier answered the data will be the same bit pattern.

- Mr. Burford's concern is being able to inspire public trust in the record. Mr. Burford just began working with a representative from DoIT on a project to examine and assess the security and preservation of digital records statewide. Mr. Burford will be involved with figuring out a strategy which will reach across state government. Additionally, the Archives Division is about to renovate its digital processes, and Mr. Burford expects to bring out certain capabilities which might benefit DVRA. One possibility is that at some point in the database process, when something is declared or considered as the record, it might be written to microfilm in an archives writer. This includes a scanner which scans microfilm back to a roster image which might be written to a textual document through Optical Character Recognition. A layperson can compare a copy just issued by DVRA with something which was fixed at some point in the past as a security and fixity. That might go a long way towards ensuring public trust. Mr. Burford intends to bring these issues to the attention of the Committee again. Mr. Burford hopes over the next year that he will have better definitive ideas about how to improve processes, but Mr. Burford stumbles over the issue of at what point could one reach into a NHVRIN database, pull out a record, and write it to microfilm saying that was the record. Maybe what the Committee can determine is if a record stored digitally is at one or more points or every time a certain kind of action happens. Should it be written to microfilm? Maybe microfilm is not the way to go, but Mr. Burford hopes to explore that. For now, Mr. Burford is concerned with the issue of fixity and does not fully trust the digital part.

- Mr. Cloutier said the cybersecurity world is discussing the same thing. If an EMP pulse scrambled the data, and the back-ups needed to be used, where is the continuity of operations? How many clerks would have brides with tears running down their eyes because they could not issue a statement because DVRA does not have the records in order to authenticate the data for which they need to have on that record? This is something Mr. Cloutier discussed with Mr. Burford and they said that are on the same path from different angles.

- Ms. Piecuch said her staff had to pull the original record because the person at the front counter did not believe that was the information on his/her birth record. Mr. Wurtz added that what Mr. Burford said is in the back of his mind every day.

- Mr. Wurtz said that soon, the newborns recorded on the first totally digital birth certificates will turn eighteen years. Eighteen year olds have a right to ask for things which they could not before, and all DVRA will be able to give to them is a computer generated document which was captured at the time of the event based on data collected at registration and stored in our database.

- Mr. Burford asked if such a record might have been corrected since with a correctional action which is recorded somewhere in that database and shows on that certificate when issued; Ms. Piecuch said the correction would appear on the certificate only if it was beyond a fourteen day period. Mr. Wurtz added that DVRA could also pull the correction paper. Mr. Burford asked if the paper is the record; Ms. Piecuch answered that the amended record is the record. Mr. Wurtz said that the sum of the data elements equals the record of that particular event. Ms. Piecuch said for birth records, customers may be told to go back to the birth hospital so the hospital could check their paperwork. Ms. Piazza said that hospital may not issue copies of the birth worksheets; Ms. Piecuch answered that hospitals have the information, although the hospital may not issue it, but the town/city clerk can verify the information held at DVRA versus what the hospital holds. Mr. Wurtz added that DVRA sees every day that the worksheet may say something different on the digital file and DVRA addresses it. Ms. Piazza said that at one time, a mother claimed her height was five feet and six or seven inches, and Ms. Piazza had to contact the mother and determine which is correct.

- Mr. Burford said that the digital matter has been discussed for so long that the Committee is pretty comfortable with what it is or is not. However, the public is not always so accepting of it. Maybe in the future, the public will be accepting; Mr. Cloutier replied that if the public can get it on their cell phone, they will be accepting of it. Mr. Burford said it is possible that all of Mr. Burford's concerns about fixity are totally irrelevant. Mr. Cloutier said many of those people whose birth certificates were born digital have a mindset that if it can be obtained on

one's phone, then it is accurate, and that their level of security-mindedness is nothing like that of Mr. Burford.

- Ms. Bottai asked how Mr. Burford would feel about the digital image coupling with the data in the NHVRIN system; Mr. Burford answered that the digital image is ones and zeros. Ms. Bottai said that in some way the digital image would be protected; Mr. Cloutier answered that it is only as good as the software which renders the digital information because it is still all ones and zeros whose engine says get the ones and zeros and display them in such a way. Dr. Laflamme said microfiche is not ones and zeros but it is light coming to one's eyes; Mr. Burford answered that it is fixed.

- Mr. Burford said that neither paper nor microfilm may be the best form of fixity, but what is being sought is how to determine the data is fixed. Every time one opens a file in a new version of software, the ones and zeros are shifted around to meet the new version. The new version of software is able to readjust the data. When one saves something in an older format, a pop-up message says some functionality may be lost if the file is saved in the older format. This is changing the structure of the information in that file. Ms. Piecuch said her office has seen that in some upgrades. Ms. Bottai said she likes paper, but her town wants the digital images, not microfilm.

- Mr. Burford works with digital all day long, managing records on a digital database. Mr. Burford recognizes that it is still a tool, not an end in itself. One can do all kinds of wonderful things and learn all kinds of wonderful information with a tool, but in the end, where is the record? What is the record? Mr. Wurtz answered that the record is the observation at the time the event took place with those present, and anything after that is a representation of what they saw and wrote down. The minute someone dies, one piece of the absolute record is established; later on when someone dies, the record may be digital.

- Mr. Wurtz said clearly to satisfy the Committee's concern for preservation, work must be done. Mr. Cloutier said that from the cybersecurity side, the issue of retrieving records which were born digital should be solved in the next six months or one year. Mr. Wurtz said that it is the Committee's obligation to reach a level of security, back-up, and acceptance which will be delivered. Mr. Wurtz continued that the fact the Committee is talking about it means that the matter has not been forgotten and will be addressed. Ms. Piecuch said that a temporary solution must be reached as the Committee works to solve this problem.

- Mr. Wurtz asked if Mr. Burford has equipment which will burn a digital file; Mr. Burford answered that he does not have an archive writer, but within the next year

or two, the Archives Division will create a digital center, and an archive writer may be a key pieces of equipment in that environment. Mr. Wurtz asked what that piece of equipment costs; Mr. Burford estimated that the cost is between $50,000 and $75,000, plus maintenance. Mr. Cloutier added that there will be set-up costs. Mr. Wurtz asked his question because it is not outside the scope of the Committee to identify equipment necessary to satisfy the level of back-up as known today. Mr. Burford is looking specifically for an archive writer to meet specifically the needs of NHVRIN. Mr. Wurtz asked if Mr. Burford could obtain some estimates for the next meeting of the Committee; Mr. Burford responded in the affirmative. Mr. Wurtz said as long as he as sat on this Committee, this issue was discussed.

- Mr. Cloutier asked Ms. Piazza if she could reproduce all the births at her facility for the last eighteen years from the worksheets; Ms. Piazza answered that she could not unless she went through every individual paper chart the facility has in the stacks. Ms. Piazza continued that as hospital records are purged, her staff is pulling the birth worksheets out and keeping them separate because the birth worksheets must be retained permanently. Mr. Burford said that if an archive writer was used, it would reduce Ms. Piazza's work because it the documents were scanned and the scanning was mass-produced, images of certain pieces of information could be generated. Ms. Piazza said that her facility has been on electronic medical records since 2007 and her facility scans the worksheets, not retaining them in their paper form, thus many of those documents are already digital. Mr. Burford said that archive writers will take all sorts of digital files, excluding music or video, and write them to a fixed form on microfilm. Mr. Wurtz asked if it satisfies the obligation of the Committee to obtain a digital archive writer; Mr. Burford answered that just as it was a good idea to get a price to scan old birth records, it would behoove the Committee to get a cost of a digital archive writer. Mr. Cloutier said it is so important to get digital data, which is not only in the Department's digital vault but is also in a hospital's digital vault.

- Mr. Wurtz made a motion to pursue the purchase of equipment necessary to achieve this goal with a maximum price of $200,000; Mr. Morin seconded the motion. Dr. Laflamme interjected that there are purchase, set-up, supplies, maintenance, storage, and labor costs, much bigger than merely buying a piece of equipment. Dr. Laflamme recalls previous discussion about uncertainty if this was the right medium to use. Dr. Laflamme asked if other options exist, especially options which do not cost $200,000; Mr. Burford answered there are three alternatives of which he is aware. The first option is a system that will somehow preserve the ones and zeros; when the State of Washington Digital Archives converts data to a new format, three to five different file formats are

created, and if any data fields are in danger, the fields are updated in a new version, creating terabytes of data. The second option is microfilm. The third option is printing paper and storing paper. Dr. Riddle said there is a fourth option: having a laser beam writing to a large metal disc, not optical or plastic, but there exists a fierce debate about the device used to read that, thus some prefer to do it analog, so it could be read with a record player. A vote was taken on the motion; one was opposed while the rest were in favor. The motion passed.

14. Community of Practice:

- Mr. Wurtz said the Community of Practice is a concept which DVRA is pursuing so that other jurisdiction may benefit from New Hampshire's experiences.

- Ms. Piazza departed at 12:20.

- Mr. Wurtz said NVHRIN is probably the most successful vital records electronic application in the world because of its complexity. DVRA could share its code with other jurisdictions; therefore other jurisdictions can come up with speed with NHVRIN almost overnight. DVRA has pursued this for about a year and a half. Guam is sending a delegation to visit DVRA on November 20-21 and Guam intends to buy a clone of NHVRIN through DVRA's vendor. The application is owned by New Hampshire, but DVRA would allow the sharing and licensing. The upcoming summit will be the first of its kind. Both Rhode Island and the CDC may also attend. Mr. Wurtz still needs to talk to his immediate supervisor about this. The CDC sees this as another huge effort to improve the quality of the way information is captured with a proven method, which is what NHVRIN is, at a reasonable cost. The meeting on November 20 will attempt to create the Memorandum Of Understanding which is necessary for DVRA to release the NHVRIN system to Guam through DVRA's vendor. New Hampshire is neither selling NHVRIN nor giving NHVRIN away.

15. Committee Chair Appointment:

- Ms. Piecuch said she has been the chair of the Committee for well over a year. According to the RSA, the Committee shall choose a chair by majority vote. Mr. Wurtz made a motion that Ms. Piecuch server another term as chair of the Committee; Mr. Burford seconded the motion. A vote was taken and all were in favor; the motion passed.

- Ms. Bonenfant asked if it was worthwhile for the Committee to meet more often; Ms. Piecuch responded that normally the Committee tries to meet twice per year. Mr. Cloutier said he understood that today's meeting was supposed to occur two months ago. Ms. Piecuch said that are some items on today's agenda which can

be removed from the next agenda, so there will not be as many items to discuss. Ms. Bonenfant said that the Committee's meetings tend to go above the two hours allotted. Mr. Wurtz said he tries to make it valuable for someone who must travel a long distance to a Committee meeting, and the last thing desired is having too many meetings without a quorum present, which has happened before. Mr. Cloutier said he has a great information technology team, so there is much happening. Ms. Piecuch said how vital records activity has evolved is unbelievable.

- Dr. Riddle and Dr. Laflamme departed at 12:30.

- Ms. Bonenfant and Mr. Rainier departed at 12:31. A quorum is no longer present.

- *Mr. Burford departed at 12:32.*

16. Mortality Surveillance Agent:

- *Mr. Wurtz said a candidate has accepted the role of Mortality Surveillance Agent. The P-37, which is almost completed, still must be executed. This individual has vast experience as funeral director and understands the value of collecting mortality data correctly. The MSA will serve a two year stint. Mr. Wurtz believes that, with the involvement of the MSA, the quality of mortality data will improve, which is what DVRA told the CDC.*

17. CDC/NCHS/NAPHSIS National Meeting:

- *Ms. Piecuch said that the Committee sent Ms. Cheney and Mr. Bentzler to a meeting in Memphis. Ms. Piecuch said she will make this an agenda item for the next meeting of the Committee so that Ms. Cheney and Mr. Bentzler can discuss it.*

18. National Association of Medical Examiners:

- *Mr. Wurtz said that he represented eCOD and DVRA with the CDC at the National Association of Medical Examiners annual meeting a fortnight ago in Scottsdale, Arizona. This was a new audience for DVRA, but there was much positive feedback, and DVRA performed two demonstrations this week from contacts made at that meeting. Most who attended the NAME conference were medical examiners. Mr. Wurtz had an opportunity to talk to the executive secretary of NAME, for whom DVRA will perform another demonstration. The executive secretary offered Mr. Wurtz to become a member of NAME because Mr. Wurtz sees these topics as a vital records professional and as a licensed funeral director. The executive director wants the board of directors of NAME to see the eCOD*

system. Both Nevada and Missouri are agreeable to become the next NeCOD participants. NeCOD will be the national model for registration systems which will be deployed. There are other products out there, however Missouri's vendor did not do what Missouri wanted and Nevada said that NeCOD was a true mobile application. Mr. Wurtz does not know what other vendors are showing, but one can go to Google Play and App Store and download New Hampshire's application, demonstrating the product's credibility. When the MSA gets on board, it will be the responsibility of the MSA to introduce this application to the medical community. Training will be offered. When Mr. Cloutier's staff and Mr. Wurtz's team pull together, Mr. Wurtz calls the group Team Excellence. Ms. Piecuch said the Committee is very fortunate because of Mr. Wurtz and his team.

19. Next meeting & adjournment:

- *Ms. Piecuch said the next meeting date would be Friday, January 26, 2018.*

- *No vote was taken to adjourn because there was no quorum. Meeting was adjourned at 12:42.*