TOM SHERMAN
Senate District 24

Legislative Office Building,
Room 5
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MEMORANDUM

DATE: November 1, 2021

TO: Honorable Chris Sununu, Governor
Honorable Sherman Packard, Speaker of the House
Honorable Chuck Morse, President of the Senate
Honorable Paul C. Smith, House Clerk
Honorable Tammy L. Wright, Senate Clerk
Michael York, State Librarian

FROM: Senator Tom Sherman, Chairman

SUBJECT: Interim Report of the Commission to Study Environmentally-Triggered Chronic Illness
RSA 126-A:73-a (SB 85, Chapter 229:2, Laws of 2019)

Pursuant to RSA 126-A:73-a (SB 85, Chapter 229:2, Laws of 2019), please find enclosed the interim report for the Commission to Study Environmentally-Triggered Chronic Illness. This report details the progress and recommendations of the Commission thus far. Please also find included the minutes and materials from previous meetings.

If you have any questions or concerns about this report, please do not hesitate to contact me.

Sincerely,

Senator Tom Sherman

Senator Tom Sherman
Senate District 24
Chairman

Enclosures: Interim Commission Report, Commission Meeting Minutes, DES/DPHS Progress Reports, Biomonitoring TrACE 2-page Summary, Subcommittee Reports
Cc: Members of the Commission

COMMISSION TO STUDY ENVIRONMENTALLY-TRIGGERED CHRONIC ILLNESS

establishing the commission to study environmentally-triggered chronic illness.

INTERIM REPORT

11/1/2021

Overview:

Active Statutory Committee (2019)
SB85
Effective Date: 7/12/2019

Chapter Law: 229:2
RSA Chapter: 126-A:73-a
Final Report Due: 11/1/2024

Membership:

Representative Jeffrey Salloway – House
Representative Betty Gay – House
Representative Gary Woods – House
Senator Denise Ricciardi– Senate
Karen Craver – NH DES
Dan Tzizik, PA – NH Medical Society
Margaret DiTulio – NH Nurse Practitioner Assoc
Honorable Nancy Murphy– House
Senator Tom Sherman – Senate **(Chair)**
Dr. Kathleen Bush – DHHS
Amy Costello – IHPP
Robert Timmons – NHHA
Honorable Mindi Messmer – Community Member appt by the President of the Senate

Charges of the Commission:

(1) Determining which entities may report confirmed cases of chronic conditions or other health-related impacts to the public health oversight program.
(2) Recommending ways to alert public health officials regarding higher than expected rates of chronic disease or other health-related impacts which may be related to exposures of unrecognized environmental contaminants.
(3) Recommending a method to inform citizens regarding programs designed to manage chronic disease or other environmental exposure health-related impacts.
(4) Recommending data sources and a method to include data compiled by a public or private entity to the greatest extent possible in the development of the public health oversight program.
(5) Defining by codes, the health status indicators to be monitored, including chronic conditions, medical conditions, and poor health outcomes.
(6) Studying current health databases, including years available, potential for small area analysis, and privacy concerns.
(7) Researching currently existing health data reports by agency, bureau, or organization.
(8) Creating a model of desired data outputs and reports for chronic conditions and other health-related impacts.
(9) Identifying the gaps between what currently exists and the model output.

(10) Recommending the organizational structure responsible for the oversight function and mandatory reporting requirements.
(11) Reviewing results of stages 1, 2 and 3 of the pilot study recommended by the previous commission established by 2017, 166 and identifying changes to subparagraphs (8), and further identify items in (9) and (10).
(12) Identifying technology system changes necessary to carry out the charge of the commission.
(13) Collaborating with the National Institutes of Health, the United States Environmental Protection Agency, and the Centers for Disease Control and Prevention to develop protocols for the department of health and human services to educate and provide guidelines for physicians and other advanced health care practitioners to identify and evaluate appropriate diagnostic screening tests to assess health effects from exposure to emerging contaminants.
(14) Collaborating with the National Institutes of Health, the United States Environmental Protection Agency, and the Centers for Disease Control and Prevention to develop protocols for programs to streamline education and outreach to health care providers about how to implement the guidelines specified in subparagraph (13). The protocols shall include education relative to methods to reduce further exposures and to eliminate the contaminants, if effective methods are available.
(15) Recommending legislation, as necessary, to carry out the charge of the commission.

(b) The commission shall solicit information from any person or entity the commission deems relevant to its study.

(c) The commission may, with input from a state agency or agencies, decide whether additional appropriations are necessary to complete the work of the commission. The commission may recommend additional appropriations for approval by the general court.

Overview and Progress:

Disclaimer: *Please note that members of the Commission to Study Environmentally-Triggered Chronic Illness agree to the filing of this final report by the Chair. This action should not be construed in any way as an adoption of any position by any member state agency on any of the recommendations of the Commission.*

In our meetings since November of 2020, the Commission has heard presentations from the Education and Data subcommittees, DHHS on multiple topics, UNH on arsenic remediation, and DES on lead in drinking water.

Please see attached appendices for minutes and available presentations. COVID-19 has resulted in challenges regarding the meeting of the Commission and member attendance, but the full Commission was able to meet six times since the submission of the previous interim report. The Education and Data subcommittees have continued to meet throughout the past year on a consistent basis. The Data subcommittee initiated compiling a NH-centered environmental exposures and associated toxins database. The Subcommittee is refining the database and is attempting to identify student volunteers to help along with members of the data subcommittee.

DHHS provide multiple informative presentations for the Commission regarding a new Enterprise Business Intelligence (EBI) system that will be a new data warehouse and data dissemination platform for DHHS, on the Birth Defects Registry, and on Biomonitoring TrACE Study. The EBI system will provide a consolidated platform for DHHS to use for enterprise reporting, analytics and visualizations, take data and provide info to employees, clients, providers and citizens, create a user-friendly environment to enable people to understand and create useful information, and to drive decision-making through a better understanding of data across programs and services. The Birth Defects Registry presentation focused on birth outcomes versus birth effects, the history of the program, and registry data.

Finally, DHHS presented to the Commission on the Biomonitoring TrACE Study, which was the State's first biomonitoring surveillance study. The Study found that although water treatment systems work, more research is needed, and it is important for NH residents to test their water. The most important findings were related to private well water quality and the chemical body burden of NH residents utilizing private wells for their home drinking water (see attached). Drinking water from private wells had higher levels of arsenic, uranium, radon, stagnant lead, stagnant copper, and strontium than water from public water supplies (PWS). Additionally, NH residents with private wells had higher levels of lead and uranium in their bodies than those utilizing PWS drinking water. The health effects of lead and uranium are well-known and reducing lead exposure is an acute priority of both the departments of Health and Human Services and Environmental Services as it can severely affect child development. The importance of the Study cannot be overstated, however additional iterations will provide more information on how the chemical body burden of NH residents changes over time. That information will help inform legislation, messaging, and public health priorities.

The Commission has held multiple discussions regarding illness clusters, rising environmental risks, interest in obtaining DOE data regarding special education, the charge of the Commission, and many other topics born out of the presentations given and data that has been shared over the course of the past year. The Commission looks forward to the collection of more data and the continued fulfilling of its charge.

Recommendations:

The Commission has no legislative recommendations at this time. However, during the next year, the Commission intends to:

- Continue to review reports of DES/DHHS collaborative efforts.
- Review the charges of the Commission.
- Review an update of DHHS' Comprehensive Cancer Program and Cancer Registry, including but not limited to:
    - The Seacoast Cancer Cluster
    - Pediatric cancer rates across the State
- Discuss the concept of geospatial analysis of chronic disease and monitor forthcoming best practices.
- Explore opportunities to create and disseminate outreach information for healthcare clinicians relative to environmental health with an aim at reducing exposures and associated impacts.
- Discuss and encourage the promotion of community engagement in an iterative feedback loop to gather and address community concerns.

The Commission also would like to make special note of the importance of the recommendations made by the Data and Education subcommittees as included in their respective interim reports.

Index of Appendices:

I) Minutes of SB85 Committee Meeting
II) DES/DPHS Progress Reports
III) Biomonitoring TrACE 2-page Summary
IV) Data Subcommittee Report
V) Education Subcommittee Report

APPENDIX I:

New Hampshire SB85

Commission to Study Environmentally-Triggered Chronic Illness

December 8, 2020 10 AM-11:28:35 AM
Available via NH Senate Livestream on YouTube @
https://www.youtube.com/watch?v=ZDd8pCRJ-2M

-Mtg opened @ 10 AM by SB85 Commission Chair, Sen. Tom Sherman, District 24 who welcomed the panel and public prior to reading the Right to Know Law compliance statement

-Sen. Sherman/ Requests that Rep. Salloway or Nancy Murphy take notes and confirms with Allan Raff (NH Senate Admin.) that meeting is being recorded

-Roll call/ Attendance (Sen. Sherman) 11 present/ 3 absent

Sen. Tom Sherman- present/ home in Rye / alone in room
Sen. Jeb Bradley- *absent*
Rep. Gary Woods- present/ home/ alone
Rep. Jeffrey Salloway- present (at home)
Rep. Bill Nelson- present 7" into mtg/ Brookfield Town Office Bldg/ Town Clerk in other office can hear
Rep. Charles McMahon- present/ home/ alone
Katie Bush, Ph.D., NH DHHS, DPH- Concord office/ one colleague in room
Mike Wimsatt, NH DES, Dir. Waste Management Div. - Concord office/ alone
Amy Costello, MPH, Dir. Center Health Analytics, UNH- present/ home in Dover/ alone in room
Dan Tzizik, PA- *absent (d/t military commitment)*
Margaret DiTulio, APRN- present/ office in Atkinson/ alone
Hon. Mindi Messmer- present/ home office in Rye/ alone
Hon. Nancy Murphy- present/ home in Merrimack/ alone in room
Robert Timmins- *absent*

-Sen. Sherman/ Reviewed meeting agenda
-Identified need for a "reliable and elected clerk"
-Asked for volunteers; seeing none, sought nominations

-Rep. Woods/ Nominates Nancy Murphy for Commission Clerk
-Rep. Salloway/ Seconds Rep. Wood's nomination
-Hon. Murphy/ Would prefer to defer to someone with better technology skills
-Sen. Sherman/ Suggests that Rep. Salloway and Rep. Woods will provide assistance
-Sen. Sherman/ Asks if Nancy Murphy will agree to 1 year term
-Hon. Murphy/ Asks if this can be revisited prior to that time
-Sen. Sherman/ Agrees

-Sen. Sherman/ Asks, and determines there is no need for further discussion
-Sen. Sherman/ Calls the roll re: Rep. Wood's nomination of Nancy Murphy as Commission Clerk:

Roll call: 11 yea/0 nay
Sen. Tom Sherman- yes
Rep. Gary Woods- yes
Rep. Jeffrey Salloway- yes
Rep. Bill Nelson- yes
Rep. Charles McMahon- yes
Dr. Katie Bush- yes
Mr. Mike Wimsatt- yes
Ms. Amy Costello- yes
Ms. Margaret DiTulio- yes
Hon. Mindi Messmer- yes
Hon. Nancy Murphy- yes

-Sen. Sherman/ Thanked Hon. Murphy for her willingness to accept Commission Clerk role and provides assurances of help
-Sen. Sherman/ Next Order of Business: Minutes from last meeting
-Discussion or corrections? None
-Rep. Salloway/ Motion to approve
-Rep. McMahon/ Seconds Rep. Salloway's motion
-Sen. Sherman/ Roll call vote to accept prior meeting minutes: 11 yea/ 0 nay

Sen. Tom Sherman- yes
Rep. Gary Woods- yes
Rep. Jeffrey Salloway- yes
Rep. Bill Nelson- yes
Rep. Charles McMahon- yes
Dr. Katie Bush- yes
Mr. Wimsatt- yes
Ms. Costello- yes
Ms. DiTulio, APRN- yes
Hon. Mindi Messmer- yes
Hon. Nancy Murphy- yes

-Sen. Sherman/ Requests updates from Data and Education Subcommittees
-Data Subcommittee Update
-Dr. Bush/ Spoke for Data Subcommittee o/b/o Dan Tzizik who was elected Chair at the most recent subcommittee meeting; states members will take turns providing input; there are a few products to share with the group; met twice since last full commission meeting- once on 11/17/20 where we reviewed a draft report that is essentially a summary of our work and what we talked a bit about last time; this can be shared and put on website after today's meeting; draws largely on previous final reports- largely the 511

Commission Report and from the bill text generally. The big piece being worked on is a conceptual framework that will be shared with the group.
-Sen. Sherman/ Asks for reminder of Data Subcommittee membership
-Dr. Bush/ Responds: Dan Tzizik as Chair, Dr. Bush, Mindi Messmer, Nancy Murphy, Amy Costello.
-Dr. Bush/ Shares screen to show members the draft Conceptual Framework the Data Subcommittee is working on; informs "we are trying to create buckets to help organize our work as there are many, many charges"; thoughts/ discussions/ recommendations were relative to determining "appropriate bucket" categories; group welcomes feedback...

Buckets/ Categories:

1. "*Monitoring and Surveillance*": Some of the key work talked about in terms of identifying relevant programs, databases, and disease outcomes of interest; things the commission may want to track, determine what the data gaps are, and what exists to fill those gaps
2. "*Reporting*": A big part of the work of this commission is to understand data and information that already exist; think about how to improve reporting of things that may not currently be reported upon
3. "*Communicating*": A big bucket that has been included relative to the work of the entire commission; the Education Subcommittee will really be focusing on the "Communicating" section of this framework; discussed two and three way communication between agencies, the public, and the legislature; both sending info out, and also using that information internally within agencies or within government to guide programs and priorities; have highlighted the importance of working with healthcare providers; broad communication and some more targeted communication and outreach
4. "*Capacity Building*"- Where the different charges related to standing up systems like IT systems to allow for data interoperability can be seen; also standing up things like processes to guide the group's work or necessary policies

Also have these cross-cutting topics/ themes of our work around collaborating, and regularly communicating with all stakeholders...

5. "*Community Engagement Process*"- Subcommittee spent a lot of time discussing this bucket; see it as a gap in the work done to date and a priority going forward; how to create an effective, responsive community engagement process where current tools and protocols to engage communities are evaluated... where data, information and input from community members is then used to guide our work; all of that info will be used to revise protocols and communicate about risks and findings; this is a cross-cutting theme of the groups work that we're going to continue to focus on; this bucket touches upon all four other buckets

-Ms. Costello/ Wonders if the "Community Engagement Process" can be pasted across the top in this schematic to reflect the interactive community engagement process through all of these areas; putting it at the top would suggest that it is in-line with the philosophy that has come through the work of the Data Subcommittee and responds to the charge in the bill?
-Hon. Messmer/ Agrees that Amy's point is a good one. Current placement was d/t formatting challenges but concurs that "Community Engagement Process" should be at top.
-Ms. Costello/ Foundation (of the conceptual framework) is collaborating with federal, local and state partners and routinely monitoring communications; it's a minor formatting change but the spirit of it can be conveyed more by placing it at the top as opposed to a fifth bucket or at the bottom.
-Dr. Bush/ Important to note that the original buckets (where the parentheses are seen) reflect the actual charges of the bill. The "Community Engagement Processes" are a distillation of all those charges- our marching orders or action items. These are the things that, based upon all of the other buckets/bullets, that the subcommittee wants to focus on and that it hopes the Commission will take on as well- how we take all of those charges and what is it that we're now trying to create/develop; whether it's the over-arching goal or problem statement, agrees that this Community Engagement Process can be our guide.
-Hon. Murphy/ Agrees with Amy's suggestion as a great idea. Asked for clarification, more specifically, of who will be included as "concerned stakeholders" under the "Communicating" bucket where we list, "Getting information from concerned stakeholders."
-Dr. Bush/ Responds... These are just excerpts of original bill text; (shared screen to highlight and review this section) "Not sure" as to who is to be included... Thinks it probably varies depending upon the topic, exposures we are talking about, etc.; may be a multitude of stakeholders depending upon current topic.
-Dr. Bush/ Referred back to the annual commission report for another big topic of discussion; group has summarized some potential topics for future presentations or future testimony- determination to be made whether these are suited to the full commission or just the Data Subcommittee. Specific suggestions are:

> -To invite DHHS representatives to present on their Enterprise Business Intelligence (EBI) System (which Amy can speak to as well)- the new data platform the agency is moving towards

-Ms. Costello/ Will not be the person to present herself but will coordinate to get the best presenter re: the Enterprise Business Intelligence System (EBI)
-Dr. Bush/ Referenced the Data Subcommittee's discussion re:

> -Creating a Registry of Outcomes, perhaps taking a more targeted approach, thinking about specific registries;

-The Birth Defects Registry; it might be good to have a presentation from the Maternal Child Health section re: the Birth Defects Registry; this had been federally funded- funding that has now been cut though there is a grant application in process seeking to refund some of that work; would be helpful to hear about the work they've done in the past and maybe some of the work they hope to do in the future;
-A presentation from the Biomonitoring Program once the TRACE Study results are out;
-DES also has a state-wide well-water project. It has sampled something like over 500 wells. When those results are out, this too, would be a worthwhile presentation.
-Noted that the people listed in parentheses on commission report under section: "Suggestions for Future Presentations" are the liaisons, not necessarily the presenters.
-Requested feedback from the group re: Data Subcommittee's suggestions re: the conceptual framework submitted or the presentation suggestions

-Sen. Sherman/ Likes all topics for presentations as all pertain to different charges in the bill/statute. Questions if, as we get these presentations, the idea is that we would then think about how we would connect that information with "Chronic Disease" and "Environmentally Triggered Chronic Illness"? Are we getting these presentations with the notion, "How do we look at this from the unique framework of this commission"? Putting this in context... the DHHS Enterprise Business Intelligence (EBI) System and Biomonitoring TRACE Study- these are databases, is that correct? The Birth Defects Registry might be a database re: birth defects"... but on the flip side, we might also be thinking, "What is also happening in the areas where we're seeing these events from an environmental standpoint"? Getting back to our idea of superimposing chronic illness over, "What is the environment in which this is occurring?" Asks if this perspective is correct and the point of the presentations.
-Ms. Costello/ Responds "Yes" to Sen. Sherman's question... Understanding the current plans for EBI; what the current state is; to be able to support the early detection of emerging conditions that may be environmentally triggered; also to understand any future plans so that as we're thinking about fillings gaps, which may require legislation or funding, we are not potentially duplicating efforts; to understand the intersection of how the EBI may be able to support the detection of health issues and whether there's any insight into potentially incorporating environmental data.
-Dr. Bush/ Agrees with Amy. When we look at this draft conceptual framework, part of our charge is to identify potential gaps- the presentations will help us see where they are and where they're going; we can try to advise or support those initiatives. Another charge is to improve interoperability of data systems and the EBI is how the health department is

trying to move towards that interoperability. This helps us get a sense of the state of the science- we can determine where we are so that we can determine where we want to go- and so that we're going there in alignment. The two data presentations- from Biomonitoring and the DES well water project, are more to help us understand hazards. We know there's a large world of potential exposures and these two studies will help us identify what contaminants are out there in the water and also showing up in people. This may help us target our focus to certain exposures based on the data. Great transition point to have Mindi talk about the other big product of our Data Subcommittee's work which was the topic of our second meeting... An inventory of 'exposure outcome pairs' – environmental exposures and what outcomes they're linked to based upon scientific literature, where we may want to improve our tracking/surveillance/ monitoring.
Hon. Messmer/ (new screen is being shared for group review) One of the other important things the subcommittee talked about is, "What databases historically have already been set up and the structures there- maybe those that haven't been funded in the past few years?"; What are the low hanging pieces of fruit that we might be able to push forward again? We looked at the NIEHS table that was in our first report from the 511 Commission and realized that it's no longer available on the website. This is actually a good thing as it allows us to go back to the drawing board and look at what's really happening in NH or what we have as concerns in NH- this allows us to recreate it to be a NH specific table. This work began just last week. On the screen is the table from the 511 Commission Report and beside it is the table the Data Subcommittee has created to begin doing that. Referencing the (on-screen) table, pointed out that PFAS was not on the older NIEHS table but that it is a current, and big concern here in NH. Again referencing the table the Data Subcommittee is creating, shared that, "We are starting to build this ourselves and including such things as PFAS, radon, lead, MTBE and maybe even some vector borne diseases that we can start looking at." One of the pieces of low hanging fruit is the Birth Defects Registry. The subcommittee is concerned about the high rates of pediatric cancer in NH and understand that low birthweights are also connected to prenatal PFAS exposure. The Birth Defects Registry presentation would allow us to hear what is there, what's already set up, and what we might be able to re-implement to start looking at the impacts of PFAS exposure in NH- and maybe other things related to low birth weight. This is just a quick overview as we've just begun setting up the structure. Any comments are welcome.
Sen. Sherman/ Mentions that his recall of the Data Subcommittee doesn't include anyone from DES. Said that we don't necessarily have to include people from the commission, as we can invite outside members. Asks Mr. Wimsatt if DES toxicologist or someone else might be part of the discussion as the info discussed is weighted heavily on the "health/ DHHS side". It

might make sense for someone from DES be included as part of the Data Subcommittee to talk about the contaminant side.
Mr. Wimsatt/ Agrees that would be a great idea especially as "various DES databases could support the work that has just been described." Will talk internally at DES to determine who would be the best person to do that.
Dr. Bush/ Responds to Sen. Sherman's remarks that though she would welcome this, "I do work very closely with the toxicologist and several programs in DES so in the interest of peoples time, I do feel they are well-represented." "Actually, one idea I want to share, that I hadn't had the chance to share with the data subgroup yet is that DES has a long list of drinking water standards for example... and those standards identify different contaminants." The list of drinking water contaminants for which we have regulations is quite long. Suggests the subcommittee may want to compare that list with the list it is creating as it might help further develop it. States that NH has regulations of contaminants believed to pose a risk to human health. As this water contamination list was shared by DES with Dr. Bush, she believes this "shows communication happening in the background." "Mike, you can assess people's availability but I want everyone to be confident that those kind of conversations do happen internally."
Sen. Sherman/ Wonders if he "jumped the gun" making that suggestion. Should have checked with the committee first. Big believer in not asking for people to participate in meetings where it's not necessary. Sounds like Katie knows who to talk to in DES if additional help is needed. Wasn't sure if that was represented on the subcommittee but it sounds like it is.
Dr. Bush/ Helpful to know that a non-member could sit on the commission. If DES wants to have someone sit that's helpful to know.
Mr. Wimsatt/ Will circle up with Katie on this. It may be that someone like Jon Ali might participate on an occasional basis when his expertise is helpful. Will talk with Katie about this.
Sen. Sherman/ Perfect. Thank you. This is phenomenal work. Very sophisticated.
Asks Dr. Bush if she remembers during the 511 Commission, when he, she, and Mike Dumond from DHHS sat down and met with some individuals from Massachusetts. (continues before she answers...) Addresses, Mr. Wimsatt, and says "Mike, we'd talked about how DHHS was in the middle of a lot of work on their data systems." "Is that still an ongoing project or is that reflected in what you presented today?"
Dr. Bush/ That's really what Amy was speaking to earlier- this "EBI". The Enterprise Business Intelligence System is going to be the new home for much of DHHS data. Folks may remember presentations on our WISDOM data portal which is really where the public health data sit. Even that will now be migrated into this new platform. "What's more exciting especially for those of us who barely understand the infrastructure, is that now, not only will things be integrated on the front end for users to go in and see, but

more importantly really for our purposes, is that on the back end, the data will now live on one system instead of multiple databases all over the place. EBI is both a place to house data and a place to pull that data from the different server spaces and push it out in a uniform fashion." That's why Dr. Bush thinks having an update on the status, and maybe even their needs- would be helpful to the group's work. Would like to "hear from folks- VIS?- blanking on the name but it's a new unit within DHHS that's guiding this work."
Sen. Sherman/ That would be awesome.
Dr. Bush/ That's all related to what is being talked about here. I think the question is, "Which of these outcomes and exposures that we are identifying that Mindi showed in the table should become those things that we track on a regular routine basis and report on a regular basis that would be in a dashboard in the future version of this? I think those are the questions we're grappling with and what's feasible to track in a meaningful way." "What can we track meaningfully that tells us something?"
Sen. Sherman/ Calls on Rep. Salloway to see if he had a question.
Rep. Salloway/ "No." "Anxiously waiting to share on the work of the Education Subcommittee as it's a perfect segway to Dr. Bush's report."
Sen. Sherman/ Has one last question on data. "Is the Cancer Registry part of EBI?"
Dr. Bush/ "It will be. The cancer data will be one of the data sets that sits within EBI." The Registry is a big entity with many staff at Dartmouth and here at the health department so when we talk about the Registry, "it's kind of this whole group. The registry data would be another key data set that would be hosted in EBI."
Sen. Sherman/ "What about being outside of DHHS? Are you able to incorporate data from say, insurance or corrections, as we've dreamed of in the past?"
Dr. Bush/ Amy will be able to speak to this a little bit more. One of the visions is that Medicaid sits within DHHS but separate from Public Health so at least this would be an ability to integrate Medicaid data and claims related to Medicaid which is a large proportion... You can maybe speak to other claims data, Amy- the allpayer/ larger claims data."
Ms. Costello/ "Deloitte was on contract to incorporate the commercial claims into EBI. Whether that becomes accessible to the public is a very good question for the presentation. Work has been done to incorporate that into the EBI and have it available to DHHS analysts."
Sen. Sherman/ Awesome.
Ms. Costello/ "Medicaid is in there as well. The Institute pulls Medicaid data from the EBI directly."
Sen. Sherman/ Notes Margaret DiTulio's raised hand and calls on her to speak.

Ms. DiTulio/ "That's a wonderful table that you all put together. Is it a 'fixed' or 'dynamic'" table? Recently I've had some literature go past me that suggested associations between arsenic and diabetes for example. How would I go about sharing that literature and maybe have that information integrated into that document or is it fixed now?"
Hon. Messmer/ We are struggling with that right now and trying to get it so that it is available to all subcommittee members as a dynamic document- having some technical issues with people being able to access it. We are working on that. For now, you can send anything you want us to see as that would be helpful.
Ms. Costello/ Some of the conversations within the Data Subcommittee were pointing to the fact that this could become a living document so that as new contaminants or new conditions were identified, this table could become the singular resource so that we aren't dependent on an NIEHS table being updated and available online- something that could be carried forward in perpetuity for whatever the SB85 Commission looks like in its future iterations.
Sen. Sherman/ "I think Rep. Salloway had shared an additional concern. Correct me if I'm wrong, Jeff, but the combustion of natural gas in the home and the connection with asthma. I think the point that Margaret and Jeff are making is that this needs to be a living document and one that is dynamic, flexible, and responds to new data. I'm not sure if that is something that would take legislation or could be incorporated within EBI or one of Katie's databases or the MOU between DES and DHHS." Something to think about... Asks if there are more questions for the Data Subcommittee. Saw Mr. Wimsatt raise his hand and called on him to speak.
Mr. Wimsatt/ Doesn't have a question but regrets that he has to step away from the meeting in a moment so wants "to answer an unrelated question that came up during the last meeting about DES's filter-pitcher project for arsenic. There was a question as to whether we understood those filters to also treat for lead contamination in water. Looked into that with staff and the answer is "yes." The name of the filter pitchers DES is using are called "ZeroWater." Their website suggests that there is a whole host of metals that those filters treat very effectively and lead is one of those." Wanted to provide this info as he'd promised to follow up on it at last meeting. Apologizes for having to leave meeting early.
Sen. Sherman/ Thanked Mr. Wimsatt. Noted Rep. Woods' raised hand and called on him to speak.
Mr. Wimsatt/ Leaves meeting @ 41:48.
Rep. Woods/ Has a question about "living document." Seeks clarification as to what that might mean. "Is the intent for an open database?" Expressed concern that if it's too "open," the risk of too many people potentially adding to it might contaminate the whole database. Concerned as "some areas

might be emotionally charged" increasing the likelihood that this could happen.
Sen. Sherman/ Acknowledges Rep. Woods' concerns as valid and his awareness that Rep. Woods has seen this happen elsewhere.
Rep. Woods/ Agrees.
Sen. Sherman/ Acknowledges that Rep. Woods brings a unique perspective and that he makes a great point. "I didn't mean 'living' like anybody could put data in but that this would be managed and include science-based data under the careful, watchful eye of somebody like Dr. Kathleen Bush or somebody like that, or the Data Subcommittee- it could be their baby to keep this- at least until we understand the best use, management, and maintenance of it. I would hope it wouldn't need any statutory support. It is probably something that could be part of that MOU between DES and DHHS." It would be a slick way to have it managed by the experts rather than by just anybody." Shares Rep. Woods' concern. Asks Rep. Woods if he has a follow-up question or if others do.
Rep. Woods/ "No. Really likes the outline presented- it's very cogent." Doesn't recall having seen the Data Subcommittee table and wonders if it can be shared with all members.
Hon. Messmer/ Seeks clarification as to which table Rep. Woods is asking for- the NIEHS or Data Subcommittee version.
Dr. Bush/ Suggests that she believes Rep. Woods is referencing the Data Subcommittee version.
Rep. Woods/ Agrees.
Dr. Bush/ "I think we'll work to get a more complete version as the one we have is very rough right now." Clarifies that what was meant earlier (referencing a live/dynamic/open document) was that Data Subcommittee is still taking suggestions for the table- such as Margaret's suggestion, etc. "We don't plan to make it public at this point." We can share a version...what we have probably is a draft- if people just want to have it and refer to it. "Maybe Mindi could share it. We definitely plan to flush it out. We really have only focused on PFAS and some of the known things like radon and arsenic."
Sen. Sherman/ Reminds Dr. Bush "this is a public meeting."
Dr. Bush/ (Begins to interject but as Sen. Sherman is speaking at the same time unclear what she says)
Sherman/ States he understands that Dr. Bush meant that the Data Subcommittee didn't want to make a formal, final report and that this is a work in progress.
Dr. Bush/ Nods in agreement. States: "But not a citizen-science data collection tool."
Sen. Sherman/ "Correct. Exactly."
Dr. Bush/ Remarks that there are columns in the table to include the citations of the associations that we are naming.

Sen. Sherman/ "Right. OK. Anything else?" Acknowledges Rep. Bill Nelson's request to speak.
Rep. Nelson/ Is "concerned if there is any data collected re: special education from the Special Education Department at the Department of Ed to see if there could be a cluster of people with autism or some other condition that might be in certain part of the state- a higher percentage."
Sen. Sherman/ "Great question."
Hon. Messmer/ Confirms that this subject was discussed and was one of the presentations that, though it doesn't appear on the current list, was sought as the Data Subcommittee is concerned about this issue- an issue that will be reflected in the table that is being created.
Sen. Sherman/ Confirms with Hon. Messmer that this education presentation will be included within the list Dr. Bush had.
Hon. Messmer/ Yes. It should be.
Sen. Sherman/ Thanks Hon. Messmer and states, "Great thought there Bill (Rep. Nelson)." Asks if there is anything else from the Date Subcommittee? Hearing nothing, moves on and recognizes Rep. Nelson's great Segway into Education. Calls on Rep. Salloway to report on the work of the Education Subcommittee (Rep. Salloway is Chair).
Rep. Salloway/ States he's having difficulty controlling his "excitement at the work that the Commission is doing and the fit between the Data Subcommittee and the Education Subcommittee. The Education Subcommittee is simply perfect. It leads him as Chair to a place he'd not anticipated but members of the subcommittee drove things in that direction." The subcommittee met on 11/17/20. There is a report from that subcommittee meeting that is not yet final- it has to go back to one more meeting of the subcommittee. He'd actually thought of posting it for this meeting but as it's not yet a final document it probably should not yet be made public until it has passed through the subcommittee one more time. Apologized. A couple of brief notes... "The Education Subcommittee indicated that there are two major dimensions to mitigating risk through education. One of which is the public health dimension and the other is the clinical dimension." The question is, "How do you get data on risk from sources of hard information into the hands of clinicians?" "We're building this on a deductive logic. We go to the literature, find out what risks are reported, and the subcommittee worked hard to specify that environmental risks vary by region of the state. We thought it would be extremely useful to enlist the aid of local public health officers as well as DHHS and DES." He "had in (his) mind, these two dimensions which were a deductive logic coming from DHHS and DES i.e. let's look at the literature, let's find out what the risks are, of arsenic, of PFAS, etc., and then let's take that to our public health officers regionally in the state, find out if they are seeing these risks and pass that information through the hospitals and the professional associations to the clinicians." "It's all built around a deductive logic.

However, the subcommittee observed that while a deductive logic is pretty standard for implementing public policy, we need to be alert to an inductive logic. For this I will hold responsible Dr. Tom Sherman and Mindi Messmer." Said "Dr. Tom Sherman, not Senator, quite deliberately." Going back 2-3 years, Dr. Sherman appeared before Health and Human Services and mentioned in his testimony a higher incidence of biliary carcinoma in his clinical region. Dr. Sherman, as a gastroenterologist, testified that he was observing, within his practice, a higher rate of biliary carcinoma. In the same fashion, the Honorable Mindi Messmer had noted sometime earlier, the prevalence of rhabdomyosarcoma (RMS) and other childhood carcinomas in the seacoast area- from this, inductively developed an approach to PFAS contamination on the seacoast. "These are inductive logics where we take data that we see and attempt to build up in search of a cause. The subcommittee noted that this was a remarkable opportunity to build a clinically based registry of complaints. This fits exactly with what Dr. Bush has just reported from the Data Subcommittee. It is laid out for us with Rep. Woods' caveat that you have to be careful what data you put into that inductive database- we have to have some controls over it. Before the subcommittee currently, is a paragraph that suggests that we recommend the creation of a registry based on clinician's observations, on a region by region basis. Think of it as a canary in the coal mine. Think of it as Hon. Messmer's observations, Dr. Sherman's observations, that these are clinically relevant findings that ought to be aggregated in a registry. Rather than waiting for a definitive study to come out" (of a medical journal of some sort), "we can build our own database from what our clinicians are seeing. I think it's an extremely powerful suggestion." Had not anticipated this coming out of the subcommittee but believes it "necessary for us to examine it as a possibility and to put it in the hands of state government and say we need to collect this data and from this attempt to build some sense of what risks are out there but have not yet been identified."

Hon. Messmer/ Adds that one of the columns in the table the Data Subcommittee is creating is "Clinical Assessment Tool" and where those data may lie in our system- that's our attempt to do exactly what Rep. Salloway is talking about- connect those clinician reports with what we're concerned about in NH. That may be a living document that is added to as clinicians feed into it with additional information within the data table.

Rep. Salloway/ As Ms. DiTulio pointed out, this has to be a dynamic document that changes moment by moment as you get reports in from clinicians.

Sen. Sherman/ Thanks Rep. Salloway. Asks if any other members of Education Subcommittee want to chime in. Notes Nancy Murphy's hand is raised and calls on her.

Hon. Murphy/ Shares that at one of our meetings it was mentioned that public health officers were thought to be very attentive to the health risks

being discussed. Made a phone call to Merrimack's health officer- Erin, to learn more about how that is working/ would work for Merrimack. Based upon info obtained during that call, and knowledge of the history of correspondence/ communications relative to the PFAS contamination issue in Merrimack over the past nearly 5 years, has questions whether or not a conclusion can be drawn state-wide, about the role of public health officers. Seems there may be differences across the state and between communities. Concerned about Merrimack's public health officer being put in the role as the person this community would rely upon to be attentive to the risks here for Merrimack residents. Asked Merrimack's public health officer (Erin) to share some information re: the role of the public health officer in this area as compared to other areas. Erin states that "many public health officers are volunteers, and she was part time in Merrimack until July (2020)." Said that seventeen public health officers are "self-inspecting." Was told that "a lot of her work is tied up with COVID-19 compliance checks, inspections of pools and daycares, and providing educational materials." Asked where she gets her information- Erin shared that she gets a lot of it from Saint Gobain- a known PFAS polluter. Also shared that Golder sends her emails. Given the experience of this community, and the ongoing impact of PFAS here, this could be very concerning to citizens. Merrimack's public health officer shared that when she gets information she saves it in files based upon location. When asked how comfortable she'd be being a resource to clinicians re: health impacts that we have here, she'd replied that with proper training etc., she'd probably feel better. Did not get the sense that under current circumstances, this public health officer felt competent to be the person to be relied upon re: acting as the resource for providers re: public health issues/ findings, etc. Her personal prior knowledge of the public health officer role within the community has led her to believe this as well. Suggests that prior to expecting or feeling confident that local public health officers serve in the aforementioned role related to the commissions work, an assessment be made of the situation as it currently exists in NH- across the state, so that changes can be implemented to better prepare public health officers if we are to rely upon them as a resource for providers.
Rep. Salloway/ Agrees that at this moment statewide, "the core of local public health officers is undeveloped and weak." "There is House legislation filed, and that will be heard this session, to organize public health officers and create a much more professional core of public health officers." Asks Hon. Murphy in her professional and political work, if she'd "support the development of a core of public health officers that would be really competent to do this type of work."
Hon. Murphy/ "Absolutely." "What a great local resource that would be. As we're not there yet would be happy to see that happen."
Sen. Sherman/ Seeks confirmation from Rep. Salloway that he (himself) is cosponsor of that legislation.

Rep. Salloway/ Concurs that they both are. Believes Hon. Murphy "is saying that this could be a conduit for dissemination of information though probably not yet ready to be the only one."
Hon. Murphy/ "Absolutely."
Sen. Sherman/ Not sure if the Education Subcommittee got into developing ties with the organizations and associations (Medical Society, Hospital Association, sub-specialty societies) that do this with their members- especially primary care. Asked if this was discussed at all in the subcommittee?
Rep. Salloway/ "To quote Rep. Woods, 'The devil is in the details.'" The general consensus for the final paragraph of our report is that we ought to be developing a means of registry from clinicians, but the details are not there. Confident that Rep. Woods can be relied upon to help develop that.
Sen. Sherman/ Shares Rep. Salloway's confidence. Calls on Ms. DiTuliuo.
Ms. DiTulio/ Her thoughts on the clinical role are in an area where there is scarce resources and as Hon. Murphy said, an underdeveloped public health service. "We have an enormous number of clinicians in the state that are passionate about the health of their community members." They don't have excess time on their hands. Sen. Sherman can speak to physician education. In nursing/ nurse practitioner education there is mention of environment and encouragement to ask about that, "but once people get into practice, it seems to fall by the wayside unless a clinician has a special interest in the environment" like she does. Those environment related questions just don't get asked. We have an army of clinicians. We need to first "increase their awareness that this is an important area for them to understand as it is impacting the health of their client population." Also we may need to "do something with associations that we already know are factual" such as the high association between arsenic and bladder cancer- and then translate that into what we know about the statistics in NH. There are things that we know and could share. If we had some members of the commission who would go to the various conferences, all these groups that were mentioned (Medical Society, Medical Associations, NP's, naturopaths, PA's, etc.), to get a platform to speak, this is a no-cost way to share information in an already existing platform.
Rep. Salloway/ Agrees.
Ms. DiTulio/ The only question is, "What would be appropriate to share?" Those systems are already in place- some of them virtual right now. She has participated in three related to the NP/environmental organization she's in. It's not difficult to put that in place. "We don't want to miss the opportunity to engage the folks that are in the trenches who can then become involved and aware." Believes this is doable and she'd be glad to be involved at any point in the future.
Sen. Sherman/ "That is awesome feedback!" Said he wouldn't stop at the nurse practitioner level. Shared that he's been working with the Senior

Support Team which he cofounded and now Chair's. This is a group that now volunteers to go into all of the nursing homes virtually- from remote access. Said that the group is in 62 facilities across the state right now with about 70 volunteers. By far, the vast majority of volunteers are nurses and their level of engagement is outstanding. Their ability to impart information to the senior residential facilities is unparalleled. The group works along with DHHS to support nursing homes. The reason he mentioned this is that it reminded him of something about communication and education. "The easiest way to get a physician or nurse to pay attention is to provide free CME's or CEU's. Maybe we have the expertise here" to develop those- using the data that the Data Subcommittee brings up, refined through DHHS and DES. "This could be turned into an educational presentation that can garner CME's/CEU's" using the current technology of video and Zoom, etc. "We could possibly create something that we can disseminate that has that kind of credit attached to it." This addresses something Mindi and I have worked on since at least 2105- getting the word out to physicians about PFAS and clinical applications. I know Nancy's been working on it too. It's not just PFAS. "The clinical implications of environment in the practice of medicine- whether you're a nurse/MD/ any level are real, practical, and can be taught." Shared that when he was in med school students didn't get any environmental medicine training. None. And there was nothing about prevention either. Now, being a conduit, would like to kick this back to the subcommittee to think about- "How do we develop programs, and who would be partners in doing that?" Thinks we have enough information when one considers lead, radon, arsenic, PFAS; and many others such as in GI- manganese, etc. All these have short and long term clinical implications that our Education Subcommittee could dream of ways to disseminate. The hook is ongoing CME/CEU requirements. Calls on Ms. Costello who has a question.
Ms. Costello/ Asks Rep. Salloway if environmental health is being included in the nursing program- before nurses hit the field
Rep. Salloway/ (signals thumbs down). 'No."
Ms. Costello/ Wonders if this is another opportunity as well.
Rep. Salloway/ Great point.
Ms. Costello/ Thinking also about "Project Echo" that is expanding through the US. Just emailed Marcy to see if CEU's are offered through the Echo trainings. That might be another quick win.
Sen. Sherman/ Asks Ms. Costello to share some more info about Project Echo as he is unfamiliar.
Ms. Costello/ Thinks of it as "just-in-time training" for emerging issues. Provides web-based training for emerging issues like COVID in nursing homes and being able to pull together a couple of experts and case studies to put together, in short order, quick training on how to manage that particular situation. She will get more intelligent information about Project Echo to Rep. Salloway and the rest of this group. That's the gist of it- not a

lot of ramp up time. There's a dire need and it's been shown to be really effective. It's out of University of New Mexico.
Rep. Salloway/ One of the hubs for Project Echo is UNH.
Ms. Costello/ Agrees. They work together with other Project Echo's so there are some that are out of Dartmouth. Understands that it's highly collaborative so if a Project Echo in New Mexico is offering MAT (medication assistance training), they'll share those modules throughout. The Project Echo through the Institute has done a whole array of different types of ECHO's and this could be one of them. As Margaret and others were saying, public health officers, nurses, doctors, etc. are very much focused on one thing right now, but when the timing is better, perhaps an environmental ECHO or CEU's would be a great opportunity. It's important to find out what's being offered at UNH and other nursing schools in NH as far as environmental health.
Sen. Sherman/ Great. Asks if there are any other comments from Education Subcommittee members.
Hon. Murphy/ "Delighted that we are at a place when education of health providers is becoming a focus." Stated that it had been suggested that the intent of HB1538 that she submitted last session, (a health provider environmental education bill), be included within one of the related commissions. A lot of work had been done on this bill. She and Rep. Woods had met with Mike and Jim at NH Medical Society, DHHS, etc. Resources seemed to be the challenge in getting CME's out to providers. Even if we were only able to get this environment/health info into impacted areas at first, that would be great. Thought it was great that Margaret had shared at our last meeting that having been informed by her involvement in the commission's work, it changed her practice and the questions that she asks. These simple questions give her so much information and allow her to delve deeper into her patient's medical history. We have such a great opportunity here. Shared that the first time she met Sen. Sherman was at a NH Medical Society meeting five years ago. She attended along with the other members of Testing for Pease and Merrimack Citizens for Clean Water and discussion was that "community members were more informed than health providers" re: PFAS and the contamination of their communities. Thinks that "this is changing a little bit but not enough." Is grateful that "we are at the place where we're looking at avenues to make that happen." Wants to find out more about Project Echo. We now have some great opportunities. So delighted with what Margaret had shared at the last meeting- when she talked about asking simple questions that people have no idea why she is asking- like what they do in their basement, and how much information that gives her.
Rep. Salloway/ Agrees.

Sen. Sherman/ Thinking "as Nancy was sharing this how exciting an evolution of health care it would be if as part of a review of systems you did an environmental review as well."
Ms. DiTulio and Hon. Murphy/ nodding in agreement
Sen. Sherman/ Asks about well water because of coliforms and diarrhea. Doesn't ask about well water because of arsenic, lead, or others but probably should be asking- even though he is not a primary care provider. Thinks this is an exciting revolution and we can have a role in bringing this forward. Encouraged the group to think about partners we might find in university systems whether UNH or Dartmouth for developing some of this programming coming out of the Education Subcommittee. Suggests to Rep. Salloway that the sky's the limit when one thinks about how best to disseminate this. Can we develop a CME/CEU or both based program...
Rep. Salloway/ interjects... "Yes, Low cost."
Sen. Sherman/ "Yes. Low cost, low budget. Those are the places where they can develop those programs and also attach the appropriate credits to them. This is a huge step for this commission." Asked for comments or questions for or from the Education Subcommittee. Hearing none, commented that both subcommittees are doing phenomenal work. Had no objection to ending a little early. Wanted to make sure we have a path forward. Encouraged the subcommittees to continue to meet to continue their great work. Would like full committee to continue to meet monthly to maintain momentum. Spoke of Dr. Bush's report that will involve several presentations. Asked if Dr. Bush could bring up the slide related to suggestions for future presentations.
Ms. Costello/ Asks if we have the dates for January and February meetings.
Sen. Sherman/ No. The problem is that we're getting into the legislative session. The plan is to go back-preferentially, to Fridays if that works for people. Meetings will continue on Zoom. He is least available on Mondays. Asked Rep's if they have any idea of what their committee schedule might be.
Rep. Salloway/ Historically Tues/Wednesdays for committee work and full House on Thursday. Thinks Friday suggestion for commission meetings makes sense.
Sen. Sherman/ Asks if group is generally available on Friday mornings. Consensus is yes. Has an ongoing commitment to the SHASHIP Commission (3rd of 4th Friday/month) unless the House effort to repeal that commission- which would be a disaster, goes through- just a little political commentary here. Asks that any Rep on the call make every effort not to let a bill move forward that would repeal the State Health Assessment State Health Improvement Plan Advisory Council as it is one of the most critical public health efforts being made in the state and it dovetails with what we are doing here. Notes that it's critical- and pretty much a requirement. Asks if members are available on the 2nd Friday of each month. Consideration is given to meeting on January 8th...

Hon. Murphy/ Asks Rep. Woods if he is aware of which Fridays the HB737 PFAS Commission will be meeting.
Rep. Woods/ Is not aware.
Sen. Sherman/ Determines that the SHASHIP Commission is meeting on January 15th. Says January 22nd is available.
Ms. Costello/ Thinking that a presentation could possibly be scheduled on the 8th or 22nd with Chiahui Chawla (Bureau Chief, Statistics and Informatics Div., DPHS) or David Wieters (Director, Information Services, DHHS).
Sen. Sherman/ Asks if plan should be for a couple of presentations per meeting or just one and leave time for discussions.
Dr. Bush/ Not sure who can coordinate with Department of Education so thinking that the two presentations on the table are re: the EBI system and the Birth Defects Registry. Hasn't yet connected with the Birth Defects folks- they're working hard on their grant renewal right now but she can keep us posted.
Sen. Sherman/ Asks the group if the plan is for subcommittee meetings before the 22nd.
Rep. Salloway/Yes.
Sen. Sherman/ Asks if the group wants to meet on January 22nd and the agenda would be an EBI presentation, discussion, and subcommittee updates. Asks Ms. Costello if she thinks that's reasonable.
Ms. Costello/ Thinks the presentation may be canned so may be able to have presentation sooner.
Sen. Sherman/ Would like to have confirmation within 48 hours for planning purposes.
Ms. Costello/ Writing an email to get confirmation.
Dr. Bush/ requests that Ms. Costello cc her for internal protocol. (Ms. Costello affirms)
Sen. Sherman/ Asks if this is agreeable to everybody.
Rep. Salloway/ Yes. Date is now on his calendar.
Sen. Sherman/ Confirms: January 8th or 22nd to be confirmed within 48 hours as best we can. Wants to make sure we have adequate public notice time. Asks Allan Raff if 2 week public notice is required.
Allan Raff / One week notice will be satisfactory. We must talk with the new Majority to see what their plan is for meetings to avoid conflicts on those dates.
Sen. Sherman/ If an open window of 9-12 is left on 1/8/21 or 1/22/21, the meeting would be either 9-11 or 10-12. Asks if that's OK with the group.
Rep. Salloway/ Yes.
Sen. Sherman/ Will coordinate with Allan for that next meeting after hearing back from Ms. Costello and Dr. Bush.
Ms. Costello/ Will copy Sen. Sherman on her email.
Sen. Sherman/ Thanks Ms. Costello.
Reviews Action Items:

-Subcommittees continuing to do their phenomenal work
-Semi-assignment for the Education Subcommittee to think about taking some of the things we now know and developing an environmental curriculum for CME/CEU credit. Maybe thinking about partners... Ms. Costello and others who might have ties with universities, maybe thinking about who we could use as a resource.
-Set up another presentation for the next meeting
-Reconvene in January

-Asks if there's any further discussion. Seeing none, asks Allan Raff if there is a need for a roll call to close the meeting.
Allan Raff/ Confirms that a roll call is required.
Rep. Salloway/ Motion to Adjourn.
Rep. Nelson/ Seconds Rep. Salloway's Motion to Adjourn.
Sen Sherman/ Calls the roll: 10 yea/0 nay

Rep. Jeffrey Salloway- yes
Rep. Gary Woods- yes
Rep. Bill Nelson- yes
Rep. Charles McMahon- yes
Sen. Tom Sherman- yes
Katie Bush- yes
Amy Costello- yes
Margaret DiTulio- yes
Hon. Mindi Messmer- yes
Hon. Nancy Murphy- yes

-Thanks members for the incredible work and wonderful discussion. Thinks the commission is making incredible progress, "it's thrilling to watch", and we have a bright future together.

Rep. Woods/ It's "very heartening to see the coalescence of data." Harkens back to the Blue Ribbon Commission he served on under Gov. Judd Gregg. Out of that, the commission came up with two points that needed to be satisfied. "One was the improvement of data and collection of data from all the resources which were fragmented." Is finally seeing it happen...from Judd Gregg's commission to now, it's finally taking place.
Rep. Salloway/ That was 30 years ago.
Rep. Woods/ Right.
Sen. Sherman/ "The wheels move slowly but they do move"... Goodbye everybody! Meeting closed at 11:28:35

Notes respectfully submitted and emailed to all members 1/13/21,
Nancy Murphy

AN ACT reestablishing the commission to study environmentally-triggered chronic illness.

SB 85, Chapter 229:2, Laws of 2019

Regular Meeting (Remote via Zoom) of the
New Hampshire SB85
Commission to Study Environmentally-Triggered Chronic Illness

January 15, 2021 12-2 PM Remote mtg. via Zoom
Available via NH Senate Livestream on YouTube @
https://www.youtube.com/watch?v=qJVaeoIkRjU
-Meeting opened @ 12 Noon by SB85 Commission Chair, Sen. Tom Sherman, District 24 who welcomed the panel and public prior to reading the "Right to Know Law" compliance statement
-Call to Order/ Roll call (Sen. Sherman) *10 present/ *4 absent (*updated later)

Sen. Tom Sherman (Chair)- present/ home in Rye, NH/ alone in room

Rep. Jeff Salloway- present/ home office in Lee, NH/ alone in room

Rep. Gary Woods- present/ home in Bow, NH/ alone in room

Sen. Jeb Bradley- absent

Rep. Bill Nelson- * absent (only initially)

Rep. Charles McMahon- absent

Katie Bush, Ph.D., NH DHHS, DPH- present/ Concord, NH office/alone in rm.

Mike Wimsatt, NH DES, Dir. Waste Management Division- present/ home in Concord, NH/ alone in room

Amy Costello, MPH, Dir. Center Health Analytics, UNH-present/ home in Dover, NH/ alone in room

Dan Tzizik, MPAS, PA-C, Concord Hospital; Associate Director of Didactic Education for the Physician Assistant Program, BU- absent (*d/t military commitment*)

Robert "Abe" Timmons, DO, MPH, FACEOM, Medical Director, Center for Occupational & Employee Health, Exeter Health Resources; Chair, Department of Occupational & Environmental Medicine, Dartmouth-Hitchcock Nashua- present/ Exeter, NH office/ one co-worker in room

Margaret DiTulio, APRN, MS, MBA- present/ home office in Jackson, NH/ alone in room

Hon. Mindi Messmer- present/ home office in Rye, NH/ alone in room

Hon. Nancy Murphy (Clerk)- present/ home in Merrimack/ alone in room

-Sen. Sherman/ Begins to review meeting agenda [Presentation by **Director Dave Wieters**, Information Services Department, NH Department of Health & Human Services; **Director Andrew Chalsma**, Analytics Department, NH Department of Health and Human Services; **Bureau Chief Chiahui Chawla,** MS, MA, Bureau of Public Health Statistics and Informatics, NH Department of Health and Human Services, Division of Public Health Services]- then stops to address approval of prior meeting notes-
-Sen. Sherman/ Calls for a motion to approve minutes from last meeting, 12/8/20
-Rep. Salloway / Motion to approve 12/8/20 meeting minutes
-Rep. Woods/ Seconds Rep. Salloway's motion to approve
-Sen. Sherman/ Any discussion on 12/8/20 minutes?
-Rep. Woods/ (referencing 20 pages of 12/8/20 notes) "Took me four hours to read them!" (laughter all around)
-Hon. Messmer/ Thanks Hon. Murphy for very detailed notes
-Sen. Sherman (and group)/ "Thank you, Nancy"
-Sen Sherman- Corrections? Comments? Seeing none...
-Sen. Sherman/ Calls the roll to accept 12/8/20 meeting minutes: *10 yea/ 0 nay (*updated later)

Sen. Sherman- yes
Rep. Salloway- yes
Rep. Woods- yes
Hon. Murphy- yes
Dr. Bush- yes
Mr. Wimsatt- yes
Ms. Costello- yes
Dr. Timmons- yes
Ms. DiTulio- yes
Hon. Messmer- yes

@ 12:07:48 PM Rep. Bill Nelson is noted to be on the call as an attendee rather than panelist; Senate Admin. Services assists to change his status.

Rep. Nelson- *present/ Brookfield, NH/ alone
Rep. Nelson- votes *yes to accept 12/8/20 meeting notes

Roll call for attendance is now *11 present/ *3 absent
Roll call to accept 12/8/20 minutes is now *11 yea/ 0 nay
-Sen. Sherman/ asks Dr. Bush (as DHHS representative) to introduce our guests
-Dr. Bush/ Welcomes two guests from DHHS and thanks Ms. Costello for inviting these presenters through her network of interactions at UNH. Informs the group that David Wieters, Director of the Information Services Department at NH DHHS, and Chiahui Chawla, Chief of the Bureau of Public Health Statistics and Informatics for NH DHHS, DPHS will talk about "a new

Enterprise Business Intelligence (EBI) system that will be a new data warehouse and data dissemination platform for DHHS." This "aligns with the goals of this commission- to integrate data, and make it available for decision making." Thanks both for their presence and willingness to share their presentation. There will be a presentation then time allotted for questions.
-Ms. Horgan, NH Senate Admin Services/ Adds that Andrew Chalsma, NH DHHS is also present as a panelist to present to the group
-Dr. Bush/ "Great! Wasn't sure whether he was presenting as well... Andrew Chalsma (Director) of the NH DHHS Analytics (Medicaid Program) Department is joining us as well."
-David Wieters/ Thanks Dr. Bush for her introduction. States his NH DHHS affiliation and that he, "along with Andrew Chalsma and Ciahui Chawla", are like the "fearsome three trying to move data analytics forward for the department." Thanks commission for inviting him to speak re: data analytics and the EBI platform. Shares his screen to begin sharing slides for his presentation...
* See Mr. Wieters' DHHS slide-show link:
https://drive.google.com/file/d/1EBPTJW0JrqxOqhYEmmrVww-Q29eDj5yX/view
What is EBI? "A scalable enterprise data analytics platform that serves as DHHS' comprehensive data repository for multiple systems." Has some public facing analytics (COVID-19 pandemic response analytics; WISDOM data for different public health initiatives). Uses "Oracle" as the database; "informatica" as the tool to move data from multiple data sources/systems into DHHS' database environment; and "+ableau" to present it internally to DHHS as well as for public facing for citizens. EBI allows DHHS "to do analytic trend analysis as well as some predictive analytics" and "really robust visualizations."
Goals of EBI? Provide a consolidated platform for all DHHS Bureau's to use for enterprise reporting, analytics and visualizations. To take DHHS data and provide info to employees, clients, providers and citizens. To create a user-friendly environment to enable people to understand and create useful information. To drive decision-making through a better understanding of data across programs and services.
What are the EBI Data Sources? Mr. Wieters shared that DHHS has integrated many data sources (too numerous to list here but includes such things as Vital records; Children, Youth and Family Referrals and Assessments; Child care Licensing and Registry Information; Vaccine Administration System; Hospital Discharge Data; COVID-19 Tracing/Investigation/Monitoring and Testing; NH Population/Census Info; Medicaid Eligibility, Managed Care Enrollment and Claims, etc.), and plans to include additional data sets.

-Sen. Sherman/ asks, "Is the vaccine registration system part of the new registry or will it be incorporated into this?"
-Mr. Wieters/ "The new registry, which DHHS is calling the NH Immunization Information System (NH IIS), will be incorporated into this." It just recently went live (soft) on 12/7/20. DHHS is working with the hospitals to go live, tentatively, in April 2021. "At that point, DHHS will ingest that data into the EBI to build more robust data analytics. This follows very specific legislation so there are data governance and management rules that go into place to ensure that data is not shared beyond the scope of what is allowed. This requires some extra effort when it comes to sensitive systems like the NH IIS."
-Sen. Sherman/ Thanks Mr. Wieters for his answer and calls for any other questions. Seeing none...
-Mr. Wieters/ Shares next slides...
EBI Dashboards: DHHS has several different internal and external dashboards to present the data in a user-friendly manner. [These dashboards include such things as Developmental Services Waitlist; DCYF Substance Misuse Related Allegations; ED Syndromic Surveillance Trends; ED Patient Migration; Custom Medicaid/Commercial Health Claims Diagnostic and Service Event Trends; and others.] DHHS employees leverage the data to make decisions on their programs and how they can further enhance services to citizens. Also, it makes public-facing data dashboards, as in the case for COVID-19 data, easy to consume and understand (informs: where the cases are presenting, where community transmission is going, where the vaccine is available and how to register).
Dashboard Architecture: A high level architecture base designed with two major environments; one non-public, the other, public.

Non-public environment: Intended for DHHS, interdepartmental, and other entities (e.g. providers, universities, etc.) in compliance with all laws to use for data analytics, reports, dashboards and integration of various data sources into a data warehouse allowing for better understanding of data, the services being offered and the outcomes of those services.

Public Environment: Housed in the cloud. Intended to be shared with the public via the web and provide insight to the issues, services and outcomes of the services. The data presented to the public will be in aggregate ensuring the security and privacy of the data. (Examples: COVID Response Dashboards; Social Determinants of Health Dashboards, etc.) The plan is to expand to include some Opioid Crisis Response Dashboards as well.

-Rep. Woods/ Asks if the decision-making process re: data garnered in EBI "is made by humans/in-person and if neural networking can be used to garner more information."

-Mr. Wieters/ Though he would "never say never", the challenges for neural networks are "funding and time". The current EBI focus is automation of the data source transformation into the environment. The next step is the machine learning, or the neural network type processing, where based off a trend analysis and understanding, and predictive analytics, you take that to the next level- saying that now that we know how our data works, we build algorithms to represent that and do it for us. "Though this would be a logical 'next' step, first DHHS must get all of the data and relate it first into our environment, so we really understand how to model it and how it relates."
-Rep. Woods/ Excited for that "next step" because "the wealth of applicable information is in that next step." "Once you can get beyond the in-person decision-making and get some help from neural nets and machine learning, the outcome is mind-boggling." Thanks Mr. Wieters.
-Sen. Sherman/ Has a question... "Is it possible for a member of the legislature/this commission/or other statutory committee to ask a question of this system, whereby you feed that query into your database, and you pull from multiple sources in one query?"
-Mr. Wieters/ Thanks Sen. Sherman for asking and shares that Mr. Chalsma or Ms. Chawla might better answer this question. Right now "DHHS is in the infancy stages of bringing all the data sources together." Building a type of question/response or that "what if?" scenario is "part of that machine learning next step type process of being able to put that in."
-Mr. Chalsma/ "We're kind of in- 'infancy' is a good way to put it." DHHS is always open for information requests and prides itself in getting information out when requested- whether that's data that's in this system or in other systems. EBI makes it easier to serve up information. As policy needs change and evolve, that's where you need to develop more public dashboards to meet a particular need and we have the tools now and kind of capacity, assuming there's a person or funding there, to make something happen- like surface emerging issues like DHHS has been doing with COVID.
-Mr. Wieters/ Listening to the questions raised here helps him to recognize what is important info to legislators and citizens- and frames what DHHS should be working on next- how to automate or build those solutions to quickly respond to these requests. Agrees with Mr. Chalsma that even if the system wasn't able to answer it, DHHS would find a way to try to get that information out of the other systems.
-Ms. Chawla/ We have the public data portal and most of the indicators meet DHHS or DPHS programs business needs. Works with the public to identify needs and then takes it back to work with internal programs to generate/ produce some data visualization and present it on the data portal, without breaking the privacy rule, so the public can see what the programs are working on.
-Mr. Wieters/ shares next slide...

Process: (people ask what the process is and why it takes so long to get data in)

.*Identify the Goal* (what are we trying to present?)

.Data source (Identify the data source we're looking at for the info needed. Some data sources help provide a better response than others and they may be housed in other departments)

.Legislative Components (Sometimes legislation may make it more difficult to share data beyond departmental boundaries. If legislative components create challenges in sharing data, and data sources can't be leveraged effectively, legislation may be introduced to try to address this.)

.What does "done" look like? (The goal may be driven by questions like those asked here today. What "done" looks like can change on a daily/weekly basis. Try to determine this at a high level at the beginning.)

.*Ingest the Data Into the EBI* [Pull the data from the data source which usually requires the following...]

.Contract amendments (with the different vendor systems that we're working with) to support data extraction and loads (bring it into EBI platform); Future contracts will have added into the standard terms and conditions, that data will be able to be extracted into DHHS EBI, eliminating the need for extraction amendments.

.*Model the Data* (happens once the data is extracted from the original data source and into the landing zone of DHHS' EBI platform)

.Team of data analysts (DHHS and contracted vendors) with database experience to transform the data

.*Publish the Dashboard*

-Mr. Wieters/ The most time consuming components are identifying the goal, and going through the legislative process to make sure the data can be used properly. These are key components to make sure that DHHS is adhering to state and federal laws, as is securing the privacy of NH citizen's data, and using it the way it was intended. The modeling of the data is where we figure out "How does it relate to our enterprise data sources?" and "What will be important for us to display in a visualization?" Shares next slide:

Future State and Next Steps

Goals: (Continue to provide...)

Department- Provide a centralized platform consisting of all state data sources from which data driven decisions can be made based on information, analysis, trends. (Hoping this expands to a state-wide EBI platform that will help drive those data-driven decisions to be made based off of info analysis and trends.)

Programmatic- Provide a platform that programs and services can use to address are/service specific analysis and visualization of data.
[Example: Ability to detect and monitor conditions that may be environmentally-related.]
Current Efforts: COVID-19 Visualizations; Opioid Crisis Response Visualizations; Public Health Analytics Migration; Medicaid and Long Term Supports and Services Visualizations
Ideas for Next Steps: Prioritization of Data and Dashboards; Identify Legislation Impacts of the Prioritized Data; Funds to Support Resources in Data Modeling and Visualizations

-Ms. Chawla/ Currently involved with enhancing WISDOM platform (an internal platform) as it does not meet the Department's needs. Improving the application to bring it to the next level- "WISDOM 2.0" to engage more data, data sets, and do more visualization as well. Interested in data linkage between environmental risks along with health outcomes. Avoids doing mapping together to avoid misleading data results. WISDOM 2.0 will have more topic areas as well as more indicators that will be presented to the public- and also to enhance performance on the data visualization site (using "+ableau" data visualization and software tools to provide a more interactive visualization). WISDOM 2.0 will be part of the DHHS public data web portal to engage the public and present on multiple health areas.
-Mr. Wieters/ re: the current ongoing efforts of Medicaid and Long Term Supports and Services... "This is where the EBI platform started and continues to grow from there."
-Mr. Chalsma/ "DHHS had not gone through a phase of rethinking about its data warehousing, data analytics, public dashboards, and internal dashboards for several years so when it began to undertake this, some of the technology had become old. Currently bringing in state of the art technology that will work with the state IT Department. The tools being used are business standard and fairly expensive. Medicaid and Long Term Supports had an enormous volume of data that we needed to get our hands on so that was the genesis for this project- using Medicaid funds to do the first big part of purchasing hardware and software. We have a very robust system thanks to Medicaid and that was possible because it was 90% funded with federal funds. That means that Medicaid and commercial insurance data is all part of the picture when we think of a new project. This makes it easy for the right person in the department, working with outside stakeholders, to get at the info they need. Having it grow is necessary to keep with that vision of tying together data where we can, and to have it easily accessible in a really high performance environment."
-Mr. Wieters/ In terms of next steps... Any time we're looking at different commissions/groups that are looking for, "How do we get those data sources and how do we address your needs?" we usually look for 3 different areas

(see * Ideas for Next Steps above and in slide presentation). Staffing is "inadequate to address all of the prioritized needs across the departments so DHHS seeks additional funds to offset the professional services we contract out for, to be able to implement these solutions. That is the end of the slide presentation so will answer any questions"...
-Sen. Sherman/ Very grateful for the presentation. Shared that "this commission is the current iteration of prior ones that sought a more robust data system capable of bringing all the different data systems together within DHHS." Asks if "EBI has the capacity to reach across to other departments?" Shared that via legislation from this commission there was an MOU (Memorandum of Understanding) developed between DES and DHHS in which Dr. Bush and Mr. Wimsatt have been very involved. "Will EBI enhance this kind of MOU that cross department understanding?"
-Mr. Wieters/ "Certainly. Currently the Department of Insurance is leveraging this platform as well as GOFER (the Governor's Office for Economic Relief and Recovery). DHHS has just entered into an agreement with the NH Department of Education where we're leveraging a preschool development grant to address education's data along with DHHS's data and combining it together."
-Sen. Sherman/ asks if the data from multiple departments (like Insurance, Corrections, etc.) "could be used to create a statewide data repository where a query could be made about something like well-water containing lead, while looking across at Medicaid and saying," "What about the socioeconomic factors it might... you take the DES map of private wells that might have high lead levels... and you correlate that with what might be happening on educational/socio-economic/ corrections levels- looking for these relationships that might be occurring and being able to validate policy that would then be reaching out to address the concerns with the understanding that this data has provided us with a real strong argument for an intervention. Is that something that you can envision this being able to do in the future?"
-Mr. Wieters/ "Yes. That embodies the vision of what we hope this system would grow to. We started it out as a DHHS solution and built the infrastructure in such a way, in conjunction with the Department of IT, so that it could be multi-tenant and expanded- allowing all of the departments to build off of it, and into it." EBI will allow them to use it for their internal data reports and visualizations. "It also allows us to then build those relationships and look at it at a state-level as opposed to a department level. It's out of scope for my team specifically because we represent DHHS but it's being built as an enterprise architecture for the state with the assistance of Commissioner Goulet (Department of IT) and his team. We have spread the news to other departments to begin to get them on board. Department of IT is a large component of running this system so it's not just a DHHS platform, it's a State of NH platform."

-Sen. Sherman/ Has a question for Ms. Chawla about her statements relative to being cautious about maps. Shared that the commission since inception "has had the idea of being able to build at least a conceptual map with all the data we have so we can look at environmental impacts (like arsenic or lead for example) that DES already has mapped in groundwater/well-water etc., and then being able to take some of the WISDOM-type data and overlay these. We understand we have to be careful about causation and correlation but are you cautioning us against being able to take these different levels of data (our maps) and being able to overlay them to look for what we're seeing in the environment in certain areas and also seeing disease outcomes clustered around that? Are you cautioning against this or is this platform pretty well-designed for that kind of bridging between two department's databases?"
-Ms. Chawla/ "We need to be cautious about presenting this type of data to the public" so as not to be misleading. Provided the example of bladder cancer and that "there are many, many environmental risks (even family history) that can cause/ result in bladder cancer. There is no specific environmental level. If we are to do this type of mapping, putting two maps together, we must be very careful of this type of utilization if this data is made publicly available. We might be able to do this internally and put maps side by side. That would be a suggestion."
-Rep. Salloway/ Wants to follow up on Sen. Sherman's questions but "move from structure to process and find out what the next administrative issues are for us." To his understanding, DHHS is constructing a database that ultimately is going to interact with WISDOM 2.0, and it's going to be a database for conducting inquiry. Wants to clarify that use of that database will be for internal DHHS decision-making and DHHS is prepared to work, on a contract basis, with organizations that want to make inquiries of that database and need access to it (Examples: federal, non-profits, for-profits, etc.). To further his own understanding, wants Mr. Wieters to assume the legislature wants to make a series of inquiries (into, for example, environmental risk and health outcomes, or insurance coverage and health outcomes, etc.), and asks if "DHHS has the staff to answer those inquiries without an exchange of funds? Are you adequately staffed to do that?"
-Mr. Wieters/ "The answer is almost certainly, No. Other states might have a Chief Data Officer or a department dedicated to this type of function, but NH does not. DHHS would do their best to access the information but would be challenged to provide complex inquiries that combines data across departments, there is not a team focused on that right now. DHHS would seek grant funds or other state funds to contract out with vendors that have those resources to help DHHS build those models and address those more complex questions more effectively."
-Rep. Salloway/ "Would you sub-contract that work out rather than creating positions within?"

-Mr. Wieters/ Seeks clarification of the question.
-Rep. Salloway/ Provides the example... This commission comes to you and says we have to have data on a very specific problem. You have a huge database. You turn to us and say, "We've got a whole line of inquiries from within DHHS, from people who have contracted with us with our limited resources, and you now want us to answer these very complex questions. If you can come up with the funds, we can subcontract that work to somebody at Dartmouth Institute/ UNH Department of Health Management and Policy." (Rep. Salloway adds, "Wonderful department- I highly recommend it!"). You would say, "This would allow us to stay agile and lean and get the work done." "Is this something we (meaning the Commission) can do?"
-Mr. Wieters/ "Absolutely! That is actually how we operate today. For the most part, our teams are set up to maintain and operate the existing system and pull what's already there and modeled. When we get these complex questions, we look for funds first to subcontract that out to Deloitte" (which was awarded the contract by bid) that does a lot of the work with us. DHHS also leveraged some other vendors to help with dashboards but Deloitte is the primary subcontractor. Subcontracting this work is the quickest way to complete this work. Building an internal team that can help guide that is also very effective- maybe not to be the persons developing the solutions but helping to guide the strategy from a state perspective- having those resources as state employees may be a benefit in the future. We'd be looking to that as an option in the future- to have a small team to help guide the state from an interdepartmental perspective, and then from a subcontracted perspective to address those complex data modeling and visualization efforts. This also helps DHHS stay agile and lean and only have a data scientist when there is actually a need as they are expensive and rather difficult to hire for full time (easier to source through vendors like Deloitte.)
-Rep. Salloway/ Thanks Mr. Wieters.
-Hon. Messmer/ Thanks the DHHS presenters for a great presentation. Not sure "which data sources DHHS is using" but as the commission is concerned about children and special needs education spending (by district), combining that with environmental data, etc., especially as we know that things like unleaded gasoline and arsenic, etc., had been previously looked at in terms of educational impacts on children. Wonder "if that is one of the data sources you're able to key into?" Recognizes the sensitivities around public presentation of this data but wonders "at what level DHHS is maintaining the ability to look at this data. Is it down to zip code level or lower?" Realizes "the data would have to be aggregated for public presentation" but wonders if DHHS "is preserving the ability to do that."
-Mr. Wieters/ "Often, internally DHHS is able to go down to the street zip code level but publicly the data must be aggregated, following strict rules to do so. Usually the aggregate is by county level but sometimes we go to the

town level. It really depends on the data itself and whether or not you can constructively identify individuals from the data being presented." DHHS goes through efforts to analyze the data dashboards that are presented publicly before being made public so constructive identification can't happen.
- Sen. Sherman- Must step away from the meeting for 5 minutes and asks Rep. Salloway to Chair the meeting until his return.
-Rep. Salloway/ Asks if data can be down to the census tract level.
-Mr. Wieters/ "May be a bit, based off a data source." Suggests that his colleagues may be better able to address this.
-Mr. Chalsma/ Believes it is "particular to the data source. Some are geocoded and allow that, and some are not." "Wherever it's necessary and we have street address that can happen." It's not as much of a challenge to access that info as previously. It is only stored in certain data sets. Only certain data sets have had that process applied to it. It's not a routine thing- but obviously, for environmental health related things, it's really important.
-Rep. Salloway/ "The zip code data is not useful. The census tract is."
[@ 12:57 PM Mr. Wimsatt notifies the Commission Clerk and apologizes for having to leave the meeting early.]
-Mr. Chalsma/ (To Rep. Salloway's comment.) "Right."
-Hon. Messmer/ "How about the special needs question?"
-Mr. Wieters/ "We are currently in the infancy of the preschool development grant, identifying data sources." He is "going to put that on the list to make sure that the team is doing that." Not personally on the team so will bring it to them so that can be addressed. It's really focused on early childhood development and the impacts of what we can/are/are not doing in preschool development that could be addressed earlier so that we can have improved future outcomes. That would be a key component of special needs spending as well.
-Mr. Chalsma/ "There is an extra layer of challenge around data privacy, because there's federal law about sharing educational records. There's HIPAA and FERPA and the privacy of some environmental data in some cases. Those are big challenges. Sometimes things can become more feasible over time if you can identify why data sharing is important and what can be done with it." Wants to emphasize what Mr. Wieters was saying earlier... "Having the platform and the policy and procedures now in the state is a huge advancement. Department of IT (DOIT) is on board with this concept. Some initial like pilots around COVID have been done with the Department of Education because there's some shared data there. Things are now working on a technical level which is a big win for everybody." Now it's about, "How do you create these shared data projects and make people feel comfortable about both sides seeing the data? As everyone works for the State of NH, it should be possible. Any important policy issue- you should be able to get there."

-Hon. Messmer/ "That's why I brought up spending as an indicator of the level of need in a community."
-Mr. Chalsma/ "Yes."
-Mr. Chalsma/ "Yes. Exactly. That particular preschool development grant is going to be interesting. That has as its vision, grabbing and looking in, as broadly as they can, at all sorts of different data sources. They may be a good pilot for involving education and health data together."
-Rep. Salloway/ "Further questions?"
-Ms. Costello/ "Have a question that may be for Dr. Bush and Mr. Wimsatt though I don't see him on anymore." [Mr. Wimsatt had to leave the meeting earlier.] Asks Dr. Bush if she is "aware of any funding on the horizon, through EPHT or other resources for building out a module or section within EBI related to environmental data?"
-Dr. Bush/ Thanks, Ms. Costello. "This speaks to identifying shared priorities. Our federal funders have priorities. As a program, we have a priority within the larger Division, priority within the larger Department priority, and then (have to consider) how does that marry/ couple with DES' priorities. Yes, there's opportunities. It's just concretely identifying what those priority areas are." Dr. Bush is part of a five member funded team at the state. If agreement was reached within the Division, within the Department, what to put energy and resources toward, there's certainly opportunity. Dr. Bush's team has been talking with Ms. Chawla about what they envision. "WISDOM 2.0 already is a private well water dashboard where we would work with DES to aggregate that data. Another example... leveraging funds from Governor allocation in the groundwater source water protection fund... radiation monitoring data from the Public Health Laboratory and developing a radiation monitoring dashboard to make that data publicly available." ... other examples that are ongoing around the biomonitoring program. That's a great example of shared data with well data and then human specimen. "These are all certainly ideas and things that are actively being worked on in the Tracking Program. It is really about legislative priorities, community priorities, and agency level priorities, and marrying that with real funding to support it. Some things are in the pipeline. Some of the really big complex questions of the Commission will require a bigger investment of resources (rather than project by project)- where we will have a truly automated query system. That's really not what we're talking about right now as what we're talking about right now is very 'people-powered'. It takes people to model and visualize the data and make that accessible."
-Rep. Salloway/ "What are you looking at for a roll out of WISDOM 2.0?"
-Ms. Chawla/ Currently, the WISDOM dashboard performance is not adequate to allow multiple users to access one dashboard at the same time so the Department is looking at what it available on the the +ableau dashboard software tools to enhance the technology performance. Current WISDOM 1.0 content and visualization must all be migrated to WISDOM 2.0.

Also looking to add Medicaid data and Environmental data from DES if it is available. There remains a lot of work to be done with great attention to maintaining privacy rules.
-Mr. Chaisma/ Asks when the first "roll-out" might be expected.
-Ms. Chawla/ Ms. Chawla's team is working with Mr. Wieters' team and DOIT and a new cloud environment is in place. The application side will be migrated from Amazon Cloud to the Department Cloud by late summer/Fall 2021. That's both the goal and necessary timeline d/t licensing due-dates. "Timeline is to have WISDOM 2.0 in place by Fall 2021."
-Rep. Salloway/ Assumes that there will be some interoperability challenges to solve as this occurs.
-Ms. Chawla/ "There are many challenges- operational, staffing (the major challenge)", etc.
-Rep. Salloway/ Thanks Ms. Chawla. Seeks other questions?
-Rep. Woods/ References discussion relative to one of the slides where "transforming the data" was described as one of the steps. Wants to ensure that data integrity is maintained and thus, has a bit of concern. Not sure what is meant by "transforming data."
-Mr. Wieters/ Provides a generic example of the goal of the transformation... In one data source, it says "David Wieters lives at 123 Elm Street", another data source says that "David Wieters lives at 123 Elm St.", and a third says, "David Wieters lives at 123 Elm." The transformation automates it, does some other checks, and says "What other items associated with David tells me that all there of those records are the same?" It does that transformation and stores it in the data warehouse as "123 Elm Street" even though it came from three different places, three different ways- but I know that it's a 100% fact, that this is all David Wieters and he lives specifically at 123 Elm Street. "It's maintaining data integrity because it's based off of rules that we know that we are matching the data properly. It is to make sure that when we're presenting it, we're not duplicating the data (otherwise it would show 3 records/entries for that one person). This is one example of one kind (there are a lot of different kinds) of transformation."
-Rep. Woods/ ""It's a clarifying process and if anything, maintains integrity rather than loses it.
-Ms. Costello and Dr. Bush/ (nod silently in agreement)
-Mr. Wieters/ "Yes."
-Hon. Messmer/ Asks if Mr. Wieters' group gets direction and funding through DHHS as his group is part of DHHS. "How does that work? Is there some sort of separation?"
-Mr. Wieters/ "Correct." Works for DHHS, the Information Services Team, and "has matrix responsibility for all the different technology systems." He is "like a liaison between us and DOIT." "All funding and solutions are DHHS directed. However, there is nothing in the grants/funding that precluded an infrastructure that could be leveraged which would have to be cost-allocated

but could be leveraged by other departments." "That's what we did. We implemented a scalable architecture so that other departments could 'play in the same sandbox.' They would however, have to invest in it." For example, DHHS can't use federal dollars to support the Department of Safety (DOS), but DOS could leverage our platform for their needs. "We could use federal funds to implement a combined opioid crisis response where we actively work with them to see how we could leverage their trauma emergency management system and combine it in. DOS would then benefit from the dashboards as well, leveraging those funds... Making sure to follow federal guidelines on how we use the federal funds, while also looking to see how we benefit the state as a whole. The Department of Insurance invested their own budget dollars to enhance and leverage the platform. They were able to buy a portion rather than the entire infrastructure, and can add on to it."
-Hon. Messmer/ "Would DES have to buy into it as well?"
-Mr. Wieters/ "Yes. Essentially... In order... What we could do though is... like again... it goes to braiding a fund so if there's a combined priority where (for example), Dr. Bush is working on something from EPHT, and we have funds from DHHS that could fund the project, but it also happens to benefit DES, that is a way in which we're able to incorporate other departments. But if DES wanted to go on their own and wanted to do something specifically without leveraging our data sources- or that was not in combination, then they would need to leverage their own funds at that point."
-Sen. Sherman/ Apologizes for having had to take a prior brief hiatus. Asks if the question that needs to be answered can drive whether or not you are able to keep this under your original funding source? Provides an example relative to the work of another advisory council that also involves DHHS- talking about the informatics- complex incorporation of information that bridges many different sources... Asks if "At the public health level, would that be an umbrella that would also be included within your grant?
-Mr. Wieters/ "We have several different grants but yes, as public health is within DHHS, it would certainly be included. DHHS was a great place to start as it impacts, and has data sources that are related to many other departments within the state. Because DHHS is intertwined, it can leverage those funds to continue those efforts and enhance them. If one of the other departments has a very specific need that's not related to DHHS, they would have to buy the licenses themselves to be able to do their own data analytics off of the system. If DES wanted to do dashboards just for their programs and services, not in conjunction with the DHHS programmer initiative, DHHS would not be able to legally bind the DHHS funds for that. They would have to pay for the professional services to implement those."
-Sen. Sherman/ Referencing the MOU that came out of a prior iteration of this commission, seeks confirmation from Mr. Wieters that if you'd be querying trying to marry the databases of DHHS and DES to look at bladder cancer and arsenic; or neurologic or behavioral issues in kids and lead

levels; all that would still fit within the rubric of the original intent of what is being done.
-Mr. Wieters/ "Absolutely."
-Sen. Sherman/ "That's helpful."
-Mr. Wieters/ "The nice thing is we can paint with a pretty broad brush and our federal partners are fairly malleable as long as we can show how it benefits DHHS' programs and services, which, for the most part, every question I heard today seems to fit in with what we're looking to do as well."
-Mr. Chalsma/ "As more and more data comes into the system, it gets leveraged for all sorts of different purposes within the Department. It's being used right now for things that have nothing to do with the initial funding. It's like we bought this great machine and filled it with good stuff and now we can use it to turn out all sorts of things- assuming there's a person there to do the analysis/querying."
-Sen. Sherman/ Can "tell by the looks on Commission members faces that this is really, really exciting." Checks to see if there are more questions... Hon. Messmer/ Seeks info as to where DOIT fits in in the scheme of these matters. As it was mentioned that they are complicit in some things, "Do you have to check in with them? Where are they housed in terms of funding? Where do they get their funding and where in the umbrella over this DHHS group do they sit?"
-Mr. Wieters/ "Since the majority of the work is currently DHHS driven, they're sitting in our Class 27 line item budget to support the resources that are focused on the services. When they work for another department, they attribute their time in using job numbers in our financial system to those departments (equivalent Class 27 line items). So- they're General Fund, but for DHHS they're cost allocated across multiple programs. We have a dedicated team whose function is to maintain the jobs back end- maintain the production, and the promotion into production in their part of each and every agile team that's working forward to deliver systems... so we don't have any bumps in the road in getting to a final publication. We have (I believe) four dedicated staff that are working from DOIT." The goal in the biennium after next, is to move that team into more of a shared service (akin to something like email and file services) for the state. "At that point they'd have a governance process on how the resources get allocated and which projects move forward. The way the system is set up, once the data source has been pulled into EBI and it's been modeled and is available for use; if you have teams like Mr. Chasima, Ms. Chawla, and Dr. Bush, we give them access to the data so they can build their own dashboards. There's a process to promote them from development into production and it's a pretty well-oiled process to do that. The additional resources are for when you're pulling in new data sources, working on legislation to allow us to use the data source, and doing the initial visualization. There's no additional cost to house the dashboard. If you have the resources within the teams like Dr.

Bush has, and maybe DES as well, they don't need professional services if they can develop them themselves. The larger and more complex it gets, the more likely we would need to subcontract out the services.""
-Hon. Messmer/ Recognizes there are some platform communication issues but wonders if there is an effort underway to pull in Department of Correction's (DOC) data."
@ 1:21 PM -Ms. Costello/ Apologizes for needing to interrupt but has to leave and wants to express her "thanks to the DHHS presenters for the invaluable information shared and their great presentation. Knows we will have more conversations in the future about how this can be used." Thanks the presenters for their time.
-Rep. Salloway/ Apologizes for having to leave as well. Thanks presenters.
-Mr. Wieters/ (Responding to Hon. Messmer's prior question re: Department of Corrections data) "Unaware of any direct efforts to bring in DOC data." "It's in his backlog of items to address and 'bring over', but COVID" interrupted that schedule. Confirms that is "an interest but is not aware of any funding or efforts moving right now."
-Hon.Messmer/ Questions if "there is any information about DOC and COVID?"
-Mr. Wieters/ "Yes, there is."
-Hon. Messmer/ Asks, "That you are using right now?"
-Mr. Wieters/ "No, not in the Enterprise platform yet- but that is a good point- to try to pull that data source in."
-Sen. Sherman/ Missed the question and asks if it was about DOC.
-Hon. Messmer- "Yes."
-Sen. Sherman/ "In 2016 I put a bill in with the work of Tyler" (Brannen, Dept of Insurance) "and John Williams- we used the money coming from CON" (Certificate of Need) "to build a platform across Corrections, Insurance and DHHS to create a database that would have all of the health information for the state as those are the three departments that deal with health and health insurance. It made it to the Senate but when a member tried to attach a poison amendment to it, it died. It sounds like this would have the capacity to do that with just a MOU with the DOC. Is that correct or will additional legislation be required to create that level of database?"
-Mr. Wieters/ Doesn't know "but will follow up." The "first step is that key component- identifying the goal. Will have to look at the legislation that's governing that." It may be that if legislation was needed before, it might be necessary again.
-Sen. Sherman/ "It was mainly a funding issue before because they didn't have any bridge software or bridge database." Tyler (Brannen, Dept of Insurance) and John Williams would be good resources to discuss that. Offers to talk more about this with Mr. Wieters. "The idea was to bring all these data points together on health in the state because without any one of

those three, you're really getting an incomplete picture of state-based healthcare."
-Mr. Wieters/ "That's a very good point. Going back to Hon. Messmer's question about DOC... We do have the DOC COVID cases included within our COVID data though they are not specifically identified as DOC originations. This is a good point. Need to get DOC and Department of Insurance. We have a lot of different gaps in terms of how we address our data sources and if we didn't have legislation to deal with, we could do it quicker. It is important in all states to maintain the privacy of our citizens." Understands the need for the legislation... "Working through and understanding the intent, and making sure we adhere to that- and then provide better services and programs as a result of bringing the data together- which we will. My hope is to get DOI on. The Department of Insurance (DOI) is starting to engage in the platform. Now that they are starting to engage, we can start building those bridges of our data sets together. Bringing up DOC was a really good point. If we bring them in as well we'll have a more holistic approach to health data."
-Mr. Chalsma/ "It is on our roadmap related to the opioid crisis and behavioral health generally. Commissioner Hanks has been interested in sharing data with the Health Department. I think it's a matter of nailing down the legal issues and then the funding for the integration of the data." How easy or difficult it is to bring data in depends upon how people have things set up. "We are doing a bit of pilot work with Medicaid to at least know if someone is incarcerated to look at profiles of people who've been incarcerated. Their particular health system data is a real unknown for me, too. I think it's a good point to follow up on. Think of them as a key future partner. They need help with their data systems, too."
-Sen. Sherman/ Sits on the Governor's Council for Corrections and Mental Health and "this has come up multiple times." "Unaware that you were this far along. This is incredibly exciting. Thank you!"
-Rep. Nelson/ States that "COVID numbers from Corrections are made public by counties on TV." Wonders where that info is obtained.
-Sen. Sherman/ "Info is released by county" which "doesn't come under 'state corrections.'" Suggests Mr. Wieters may have more information.
-Mr. Wieters/ Apologizes for any misunderstanding. Clarifies that "it's not that we can't put the data out. It's put out at the county level and we do have some level of visibility to the Department of Corrections data at the state level as well. We have not ingested it into our EBI to be able to display it in our COVID 19 dashboards to narrow it down to say that these are DOC/ people who have contracted COVID 19 in the DOC. It hasn't been a filter that we've ingested yet. It is a goal and a good goal to have that data. Want to clarify that it's not that the data isn't there, it's just that it's not pulled into one centralized place yet."
-Rep. Nelson/ "Thank you."

-Sen. Sherman/ Was "thinking about issues related to the Governor's Council that I sit on... The idea of being able to access Medicaid and whether or not you're able to pick up Medicaid upon release from prison. Then, being able to correlate that data to recidivism rates... You can just imagine the power of this data if it can be married. It's really, really exciting stuff! I'm getting awfully close to living in Dr. Bush's world there!" Asks if there are any other questions for the team. Seeing none, thanks the three DHHS presenters.
-Mr. Wieters/ Thanks Sen. Sherman and Commission members.
-Dr. Bush/ Thanks the DHHS presenters.
Presenters leave meeting @ 1:30 PM
-Sen. Sherman/ Is "very excited about what we heard today." While this information is fresh in our minds, asks Dr. Bush how she "thinks we can make this actionable."
-Dr. Bush/ Pulled up the charges of the Commission. Thinks "a key step for the Commission is to come up with concrete recommendations." Recognizes that "we want the whole world of environmental health at our fingertips but we've heard that it still takes 'people-power' to model the data and make the visualizations. What is our short list then? If we're going to put resources towards building something, what should that be? Should it be PFAS/arsenic and health outcomes? Should it be children's health? I think the charge for us is to help prioritize the environmental priorities for when the State Health Assessment and State Health Improvement Plan Advisory Council (SHASHIP) is meeting and discussing environmental health. What are the priorities within an environmental health bucket? Once we have a priority, and a shared priority across agencies, and a shared priority with the legislature, then (as Mr. Wieters said) we find the resources to build it. What's most important to either drive policy or answer unanswered questions where we want to have data to help us?" Believes "this has been the challenge since the beginning... What are the priority topics to really put our resources towards?"
-Sen. Sherman/ Thinks "our challenge has evolved somewhat because our challenge originally was this kind of data access and being able to query data just didn't exist." Though we had the data, it wasn't something we could readily go to and ask questions of it and come back with answers. "Maybe our next meeting should be to take what we've learned, what we've got from our data and education subcommittees, and sort of have more of a 'free-thinking, where do we go from here with all of this' session? An hour/hour and a half of really trying to pull together our collective thoughts on next steps for this Commission." Sees Hon. Messmer's hand raised and calls on her to speak.
-Hon. Messmer/ Asked if we are able to meet (via Zoom) in subcommittee's yet?
-Sen. Sherman/ Confirms that subcommittees can meet.

-Hon. Messmer/ A path to make that happen for House subcommittee's has not yet been confirmed.
-Sen. Sherman/ Remarks that Ms. Horgan is present and "We can check to see if subcommittee's can meet. Actually SHASHIP is meeting but as they're under DHHS, they have a slightly more robust ability to do some of this."
-Hon. Messmer/ Requests clarification as to what "SHASHIP" is.
-Sen. Sherman/ SHASHIP is "the State Health Assessment and State Health Improvement Plan Advisory Council. It was created by legislation passed a year ago and is working to develop the state health improvement plan. It's an ongoing Council without an 'out' date. It will be working on issues of public healthcare state-wide, long-term. The charge is now to develop this required state health improvement plan. There are a lot of parallels with all of these different commissions and a lot of cross-pollination. These all have real implications." Asks if "this is something that everybody would be in favor of for our next meeting." (Members nod.) Suggests members "go back over the last several meetings and review minutes/presentations so we can discuss next steps for this Commission at our February meeting."
-Hon. Messmer/ Mentions that the "data group had some recommendations for presentations" for consideration that "we don't want to lose track of." Asks Dr. Bush if she recalls what those were.
-Dr. Bush/ Pulled up our data subcommittee notes. "We'd talked about having the Birth Defects Registry present as a specific example of a registry that had lost its funding but is pursuing new funding... We are all familiar with the Cancer Registry. The Birth Defects Registry is one more data set that I think we're interested in as birth outcomes or birth defects may be relevant from an environmental health perspective. One idea was to invite the Maternal-Child Health Program to give a presentation on the birth defects registry as an example of a registry that may be tracking outcomes of interest."
-Sen. Sherman/ (Notes Hon. Murphy's hand raised and calls on her to speak.)
-Hon. Murphy/ "One of our other stated interests that may not have made it on the list was an interest in special education and costs associated, etc. It also came up in our conversation today and would be helpful."
-Sen. Sherman/ Questions if the Department of Education is where that function would be housed.
-Dr. Bush/ Confirms her belief that is true. Mentions that Mr. Wieters stated that "they're just beginning to engage with the Department of Education around the preschool development grant". Dr. Bush "knows that the Lead Program at the Health Department is also interested." Believes "they're having some conversations at the agency level around who the right people are" so doesn't "have a name or contact. They're trying to do some relationship building. I can try to follow up specifically if we wanted to try to find someone to give that kind of presentation", but "thinks the question

before us is, Do we want to have more of those presentations or do we need to do some of our own visioning and prioritizing to know then which of these presentations fits best?"
-Sen. Sherman/ Thoughts? (No response from group.) "We can see if we can get the Birth Defects Registry for our next meeting. Not sure how we could track down Special Ed but can look at the Department of Education and then have our re-group in March as those have been suggested out of the Data Subcommittee."
-Hon. Messmer/ "I think that makes sense to gather up as much info as we can get, and then re-group."
-Sen. Sherman/ Asks Dr. Bush to work on acquisition of a presenter from the Birth Defects Registry, and states that he and Jenny "will work on the DOE/ Special Ed presentation."
-Dr. Bush/ Nods in agreement.
-Ms. Horgan/ "Sounds good to me, Senator."
-Dr. Bush/ "Do we have a meeting scheduled for February? Or is that the next item on the agenda?"
-Sen. Sherman/ "That would be our last item of business. Everybody pull out their calendars." Asks if 2/19/21 at 12 PM-2 PM works for everyone.
-Commission members nod in agreement
-Sen. Sherman/ Asks Ms. Horgan to "put this meeting date and time in the Calendar' and states they "will start working on presenters." Asks Dr. Bush if the Cancer Registry should come back to present, if we are "up to date on them", or "if they've changed significantly?" Looks to Dr. Bush who appears to indicate that there hasn't been significant change, so Sen. Sherman acknowledges that and says, "No" (indicating an understanding there is no need to schedule a Cancer Registry presentation.)
-Hon. Messmer/ "Their data is being already being incorporated into the dashboard, WISDOM 2.0... they're already in there so there's no real need."
-Sen. Sherman/ "So, we'll work on those two presentations... Gary?"
-Rep. Woods/ "Just a side thought... Given what we've heard today, the ability to look at a lot more data, our wish list of what we'd like to do, has been greatly expanded. Who we can have come present...hmmm... We're now looking at who is going to present versus what we're going to do... it's a never-ending process."
Sen. Sherman/ Agrees. Thinks that he, Rep. Woods and Rep. Nelson "will have to think about this being an incredibly tight budget year." Says "there hasn't been much success trying to get more support to DHHS." Thinks "some of the IT work being done right now is almost limitless in the ability for it to inform policy." Hopes in their respective constituencies "we can support the Department as they ask for this." Asks Dr. Bush to let the three mentioned and Rep. Salloway know, and "they can pass it along to Sen. Bradley, although he may already be aware, where in the budget some of

the support for this IT work lies so we can specifically make sure it's left intact."
-Dr. Bush/ "Yes. Thinks that's a great idea." Will "reach out to today's presenters." "Knows that there is an IT piece in the Capital Budget separate from the Program Budgets- it's really infrastructure."
-Rep. Woods/ "It's very hard to put a firm number on it, but the ROI for good data downstream certainly makes for a lot of cost savings."
-Hon. Messmer/ "As evidenced by the pandemic"... (members nod and smile)
-Sen. Sherman/ Asks Rep. Nelson if he has anb thoughts...
-Rep. Nelson/ Would "like to see anything we need prioritized. In other words, if we needed some more people, what things would you get if one person was hired, two three... because we may not go for the whole thing. What would the first priority be?"
-Rep. Woods/ "Same for topics, too. The ROI for one area for say, lead vs something else, what would come into play as well?"
-Sen. Sherman/ "That's where understanding some of the Special Ed data and neurobehavioral issues with the lead issues- that kind of thing"... Asks Hon. Messmer to confirm "that arsenic is becoming more of a concern for neurotoxicity."
-Hon. Messmer/ "Yes." Nods and affirms.
-Sen. Sherman/ "The long-term costs of neurotoxicity from children are overwhelming."
-Hon. Messmer/ "And PFAS as well."
-Sen. Sherman/ "And PFAS as well. We're seeing just the other day that the former Governor of Michigan was indicted for his role in the Flint water crisis... Mindy and I have met the pediatrician who unroofed all of that and brought it national attention. The impact on their child development world for an entire generation is going to be enormous. What Rep. Woods is saying about good data driving good policy and really having a real impact on the fiscal component is absolutely true."
-Hon. Messmer/ "Also on things like pediatric cancer that is so incredibly expensive to treat and the impacts on the child are life-long."
-Sen. Sherman/ Agrees.
-Rep. Woods/ "An example we can fall back on is the mercury episode from about twenty years ago. That had wide-ranging impact as well."
-Sen. Sherman/ "Right." Thanks Ms. Hogan and members for a great meeting. "Next meeting will be on Friday February 19th from Noon-2 PM. Hopefully we'll have those two presentations then, and in March we will use that meeting as a re-group where we take all that we've heard and try to come up with some priorities that we can move forward on."

Meeting and video ended at 1:52 PM without a roll call.
Notes respectfully submitted and emailed to all members 2/18/21,
Nancy Murphy

AN ACT reestablishing the commission to study environmentally-triggered chronic illness.

SB 85, Chapter 229:2, Laws of 2019

Regular Meeting (Remote via Zoom) of the
New Hampshire SB85
Commission to Study Environmentally-Triggered Chronic Illness

February 19, 2021 12-2 PM Remote mtg. via Zoom
Available via NH Senate Livestream on YouTube @
https://www.youtube.com/watch?v=4f6dTzIPnjk
-Mtg opened @ 12 Noon by SB85 Commission Chair, Sen. Tom Sherman, District 24 who welcomed the panel and public prior to reading the Right to Know Law compliance statement
-Sen. Sherman/ Calls the mtg. to order and is about to begin the Roll Call...
-Ms. Jenny Horgan (Sen. Admin. Staff)/ Notifies Sen. Sherman that "late last evening Sen. Denise Ricciardi was appointed to the commission to replace Sen. Jeb Bradley." Confirms that "d/t the late appointment, Sen. Ricciardi has a conflict for today's meeting and is not able to be present today."
-Sen. Sherman/ Roll Call:

-Sen. Denise Ricciardi- absent
-Rep. Jeff Salloway- present/ home office in Lee/ alone
-Rep. Gary Woods- present/ home in Bow/ alone in room
-Rep. Bill Nelson- present/ home in Brookfield/ alone
-Rep. Charles McMahon- present/ home in Windham/ alone in room (wife @ home)
-Katie Bush, Ph.D., NH DHHS, DPH- present/ Concord office/alone in rm.
-Mike Wimsatt, NH DES, Dir. Waste Management Division- present/ home office in Concord/ alone
-Robert "Abe" Timmons, DO, MPH, FACEOM, Medical Director, Center for Occupational & Employee Health, Exeter Health Resources; Chair, Department of Occupational & Environmental Medicine, Dartmouth-Hitchcock Nashua- present/ Exeter, NH office/ absent
-Amy Costello, MPH, Dir. Center Health Analytics, UNH-present/ home office in Dover/ alone in room (family in the house)
-Dan Tzizik, MPAS, PA-C, Concord Hospital; Associate Director of Didactic Education for the Physician Assistant Program, BU; - absent (*d/t military commitment*)
-Hon. Mindi Messmer- present/ home office in Rye/ alone in room (other people @ home
-Margaret DiTulio, APRN- present/ office in Jackson/ alone
-Hon. Nancy Murphy- present/ home in Merrimack/ alone in room Sen. Tom –Sen. Tom Sherman- present/ home in Rye/ alone in room

*Roll Call: 11 present/ 3 absent

-Sen. Sherman/ Informs members that after reviewing the January 19, 2021 meeting minutes, he "will have to leave asap d/t an emergency meeting of the Crisis Standards of Care Committee" which he serves on; states that "Hon. Murphy has agreed to run the meeting as acting chair"; seeks motion to accept prior commission meeting (1/19/21) minutes.

-Rep. Salloway/ "So moved."

-Rep. Woods/ "Second"

-Sen. Sherman/ "Is there any discussion of the minutes?" seeing none... Calls the roll to accept the January 19, 2021 meeting minutes

-Sen. Sherman- votes yes
-Rep. Salloway- yes
-Rep. Woods-yes
-Rep. Nelson- yes
-Rep. McMahon- yes
-Dr. Bush- yes
-Mr. Wimsatt- yes
-Ms. Costello- yes
-Hon. Mesmer- yes
-Ms. DiTulio- yes
-Hon. Murphy- yes

*January 19, 2021 Meeting Minutes Approved 11 yea/ 0 nay

-Sen. Sherman/ "Typically these meetings have been on the third Friday of the month at noon so that would like to schedule the next meeting time before leaving... March 19th? March 19th at noon?" "Okay. So let the record show that we'll be meeting 12-2 on March 19th and with that, I'm going to turn this over to the capable hands of Nancy Murphy and thank you all for your understanding."

-Hon. Murphy/ "Thank you, Senator Sherman. (Sen. Sherman exits the meeting.) Mr. Wimsatt?"

-Mr. Wimsatt/ Has "a conflict for the first hour of the meeting on that date (3/19) but" is willing to "join late."

-Hon. Murphy/ "Okay. Does anybody else have a conflict? I'm thinking that's the meeting where we're probably going to have the presentation from the

Department of Education. I think that was next up on the agenda and hopefully it will be taped. Is that all right with you, Mike?" (Mr. Wimsatt nods in the affirmative.) Suggests that it may be possible to have the presentation a bit later in the meeting. Raises the need to meet as subcommittee's and whether that is something that should be talked about now. Notes that Sen. Sherman had requested that members review the last six meetings or so to come up with some recommendations to determine where we want to move forward. Wonders if it makes sense to have subcommittee meetings before the next full commission meeting on 3/19. Any thoughts?

-Rep. Salloway/ "We ought to do that."

-Hon. Murphy/ "Education...Data...any other subcommittees? Yes, Mindi?"

-Hon. Messmer/ "Are we able to meet using some sort of Zoom platform? There was a question about whether we could physically meet or if there was an opportunity to use Zoom."

-Hon. Murphy/ Acknowledged the scheduling challenges that exist and as the need for subcommittees to meet was raised at the last full commission meeting, wonders where things stand currently in terms of making that happen. Asked Ms. Horgan if she had any further update/answers as to if this was possible.

-Ms. Horgan/ "Yes. It is absolutely possible. The only constraint that we really have in terms of the Senate Zoom is that we only have three Senate Zoom accounts and we are pushing our luck getting one to use for this commission meeting." We have in the past, allowed other Zoom accounts to be used to host meetings. Aware that Senator Sherman was talking about upgrading his account to potentially use to solve the issue re: access to a Senate Zoom account. "I think that's definitely something that we can figure out."

-Hon. Murphy/ "Ms. DiTulio?"

-Ms. DiTulio/ Doesn't know "if it would apply but she uses HIPAA compliant 'Go To Meeting' for telemedicine" and offers to "make that available to the education subcommittee if that would be acceptable from a confidentiality standpoint."

-Hon. Murphy/ Unsure if that is an option.

-Hon. Messmer/ Believes "the issue is that these subcommittee meetings have to be public." Questions "whether or not personal accounts can be used for public meetings." Offers her personal account as well but is not confident that is a viable option.

-Ms. Horgan/ "If we were to use Senator Sherman's account it would be posted and there would be a link in the Senate Calendar. If there were to be any subcommittee meetings, the link would be posted and the public would have to have access. We've had a number of commissions- the SHASHIP Advisory Council (STATE HEALTH ASSESSMENT AND STATE HEALTH IMPROVEMENT PLAN ADVISORY COUNCIL) has a link through the UNH platform, so there are other options for us to use. It's just a question of figuring out that. So, if the subcommittees want to determine a date and time and then we can go from there and figure out what Zoom platform would be used. They absolutely would have to be accessible by the public and posted in the calendars appropriately."

-Hon. Murphy/ So... Asks if members want to "come up with some potential dates" so that Jenny might be able to assist with scheduling/arranging these meetings. "I think if we don't we're likely to get further behind (re: scheduling). We only have a month to the next full commission meeting. Any consideration for potential dates for the Education Subcommittee to meet?"

-Rep. Salloway/ Hasn't "thought about it but will try to get that done this week."

-Hon. Murphy/ "Any ideas for the Data Subcommittee?"

-Hon. Messmer/ "I would suggest a similar time frame to this meeting possibly if it works for people. On a Friday at noon- any of the Friday's between now and then."

-Hon. Murphy/ "I know on the 12th (3/12) we have the HB 737 commission meeting from 10AM to 12. So would we want to meet after that? Or we have also have the 5th maybe? Dr. Bush?"

-Dr. Bush/ "Yes. Either of those work for me."

-Ms. Costello/ "Is the 12th (3/12) a possibility?"

-Hon. Murphy/ "The 12th is a possibility, it's just that we have an HB737 commission meeting from 10AM to 12."

-Ms. Costello/ Asks if the Data Subcommittee could "meet at 1PM on 3/12"....

-Dr. Bush/ "So maybe we can meet from just 1-2 PM. Do you think that would be sufficient?"

-Hon. Murphy/ "That works for me."

-Dr. Bush nods in agreement.

-Hon. Messmer/ "Yes."

-Hon. Murphy/ Asks who else is on the Data Subcommittee.

-Ms. Costello/ "Dan Tzizk is on the subcommittee but not sure if he is still participating/returning at some point."

-Rep. Nelson/ Asks for a reminder as to which subcommittee he is on.

-Hon. Murphy/ "Not sure." Doesn't think either the Data nor Education subcommittees. Asks if there are "other subcommittees or just the two."

-Rep. Salloway and Dr. Bush/ Both confirm that at present, "there are just the two"- the Education and Data subcommittees.

-Hon. Murphy/ Asks Ms. Horgan to look into scheduling a Data Subcommittee meeting for 3/12/21 from 1-2 PM.

-Ms. Horgan/ Agrees to do so. Reviews (lists each subcommittee and its members) to confirm Senate Admin. Services has the correct appointees for both the Data and Education Subcommittees.

Education Subcommittee:
Representative Salloway
Ms. Margaret DiTulio
~~Mr. Mooney~~ (no longer a commission appointee)
Representative Woods
Hon. Mindy Messmer
Hon. Nancy Murphy

Data Subcommittee:
Hon. Nancy Murphy
Mr. Dan Tzizk
Ms. Amy Costello

Dr. Bush
Hon. Mindy Messmer

-Hon. Messmer/ Suggests "maybe it's a good idea to review those subcommittee groups again as we have new commission members who may want to join particular subcommittees."

-Dr. Bush/ Suggests that this "could be an agenda item for the next meeting after the subcommittees meet and report back to the full commission. That might be a good time for new members to choose where they'd like to participate as the subcommittee report would provide some info re: the work of the particular subcommittees and new members would have a better sense of what they're joining."

-Ms. Costello/ Suggests another option for "Go to Meeting" to Ms. Horgan. "If you want to use a UNH Zoom account like I think you have from Joe Porter for SHASHIP, I'm happy to volunteer that."

-Ms. Horgan/ Thanks Ms. Costello. "I'll for sure let you know."

-Ms. Costello/ "It's really easy for me to set that up."

-Hon. Murphy/ Notes Dr. Bush's hand raised "Dr. Bush?"

-Dr. Bush/ Acknowledges that we have some guests on the line to give our presentation and she'd asked them to just hold the first hour of our meeting. Acknowledging their time asks if we can plan to move to that portion of the agenda and come back to additional housekeeping items thereafter.

-Hon. Murphy/ "Absolutely. Thank you, Dr. Bush. Maybe you could introduce them. Thank you so much for arranging this presentation. I know both our commission and the 737 commission members, and members of the public are really interested in hearing from them today so, thank you.

-Dr. Bush/ "Sure, sure. We're very happy to have some guests here from the Division of Public Health Services, specifically within the Maternal Child Health section. So, Suzann is here. She's a public health nurse and also the Birth Conditions Program Coordinator. And Dr. David Laflamme is here. He's an epidemiologist with the program but also serves as a research assistant professor at the University of New Hampshire in health management and policy and the Institute for Health Policy and Practice. I'm sorry, Sue, I didn't want to mess up your name so please feel free to introduce yourself with your full name. I figured

rather than mispronounce it I would let you do that yourself. Here they are now- we can see their faces even. So, thank you for promoting them to be panelists. So, again, they're here from the DPHS Maternal and Child Health (MCH) Program and are going to talk to us about some of the data and surveillance work that they do related to birth outcomes/ birth conditions and specifically some details around the Birth Defects Registry that they work on. So thank you all, thank you both for being here today and I will pass it over. You should have the ability to share your screen and unmute yourselves. Now to present."

*Presentation Begins: NH DHHS, Division of Public Health Services (DPHS), Maternal Child Health section.

Birth Defects Registry Presentation SB85 Commission Meeting 2.19.21.pdf

-Suzann Beauregard, RN, Birth Conditions Program Coordinator.
-David Laflamme, PhD, MPH, State Maternal & Child Health Epidemiologist, NH, DPHS; UNH Institute for Health Policy & Practice

-Ms. Beauregard/ "Hi everyone. My name is Suzann Beauregard. You can call me, Sue. I am the Coordinator for the Birth Defects Program."

-Dr. David Laflamme/ "Hi, I'm David Laflamme, the state Maternal and Child Health epidemiologist. I see a few familiar faces here. Nice to see some of you again." (Rep. Salloway and Ms. Costello waving) "Jeff, it's been way too long! Amy. I look forward to talking with you today. I think Sue's gonna' lead us off with some of the slides."

-Ms. Beauregard/ "I'm gonna' go ahead and try to share my screen here." (Begins screen sharing)

-Dr. Bush/ "There we go, great. Perfect."

-Ms. Beauregard/ "Can everybody see that okay?"

-Dr. Bush/ "Yep. Wonderful."

-Ms. Beauregard/ "So we're going to talk a little bit about the Birth Conditions Program and kind of give you an overview... also the Maternal and Child Health Section. I have two screens here so if you see me looking away from you I'm looking at the presentation."

-Hon. Messmer/ "I'm sorry to interrupt you. Is it possible to speak up a little bit as it's hard to hear you."

-Ms. Beauregard/ "Oh, sure. (Speaks louder and asks) Is that better?"

-Shares "Outline" screen

-Ms. Beauregard/ "So this is just an overview of what we're going to talk about today. Birth outcomes versus birth effects, history of the program, registry data, and just some final points at the end."

-Changes screen to "Birth Outcomes vs. Birth Defects" "Birth Outcomes"

-Ms. Beauregard/ "Sorry about that"...

-Changes screen to "Maternal & Child Health Surveillance Activities"

-Ms. Beauregard/ "So this is just an overview of what the Maternal and Child Health Surveillance Activities are. So Maternal and Child Health- that section sits within the Bureau of Population Health and Community Services, and the Division of Public Health Services. And surveillance programs or activities within Maternal and Child Health- just an overview, is what you see here. The Birth Defects or Birth Conditions Program falls under the Newborn Screening Programs activities.

So we wanted to just kind of give a brief overview of the difference between birth outcomes and birth defects. You may be thinking that they're both the same thing- but not necessarily. And I'll let David jump in here also to explain birth outcomes a little bit better. But as you see, birth outcomes refer to measures like gestational age or birth weight and infants born preterm or at low birth weight at term. Do you want to expand on that, David?"

-Dr. Laflamme/ "Sure. So birth defects or birth conditions, you might hear them called, are essentially a subset of birth outcomes... and then the birth outcomes that most people are the most familiar with are just gestational age and birth weight based outcomes. Of course there are some others but those are the two primary ones that you see."

-Ms. Beauregard changes the slide to "Birth Defects"

-Ms. Beauregard/ "Ooops! Sorry about that. So the birth defects portion of that are usually structural changes- you can either see them or not see them. You know things that you could see are like club feet or spina bifida. Some you can't see... heart defects, which are fairly common. And all of the birth defects can be mild or severe.

So... Things about birth defects... How common are they? I think in general, you know David and I have talked about... these are somewhat rare events if you look at the information... even though every four and a half minutes a baby is born with a birth defect in the United States- affecting one in 33 infants. When you think about annually, that's only 120,000 babies born with a birth defect. However they are very costly. Particularly the ones that need surgical corrections. And then over the lifespan, what it what it takes to help these children is very expensive. Birth defects are also the 'cousin' of one in every five deaths during the first year of life. So in the first year of life I think it's the leading cause of death."

-Dr. Laflamme/ "And Sue, before you move on I'll just point out a little bit... I know we're talking about data over time in this discussion and so, the fact that these are structural changes present at birth, they're not always picked up at birth. I just want to point that out because from a data collection standpoint, we don't always know right away at the birth. So some of these we can track on the birth certificate- others may not show up until significantly later in life."

-Ms. Beauregard/ "Exactly. Even some of the heart defects sometimes are not picked up until later. Or sometimes they need to be monitored for a few years to see if they actually are a defect or something that is just a normal part of the heart development or what have you. As far as the New Hampshire kind of figures- how do we figure that? I think the approximately 120,000 babies per year" (in the US) "puts that at about 3% for birth defects. For NH, I think we have about ~~134~~ million" (number corrected by Dr. Laflamme below), "I think that's what we decided was the population here. With about 12,000 births a year, the information from the previous program was that we have about 2.7% of babies born with birth defects annually."

-Dr. Laflamme/ Adds that he believes Ms. Beauregard was "trying to say 1.3 million is the population of New Hampshire".

-Ms. Beauregard changes slide to "What Causes Birth Defects"

-Ms. Beauregard/ "Yes! Correct. Oops for me. So what are the causes of birth defects? So we typically talk a lot about maternal factors... you know places where we can affect some change prior to a pregnancy. So (things) such as substance abuse or certain medications that someone might be on... or making sure that we're paying attention to infections. I'm sure previously, you've heard in the last several years- the Zika virus which is a virus that created birth defects... We try to pay attention to those things that we can

help with- and making sure that... prenatally before mom gets pregnant, they are aware of these things. ... Other things that can be on the mother's side are obesity or uncontrolled diabetes. We talked about certain medications...Sometimes just being... an older mom- being pregnant over 34 years old.... you would think of ... Down Syndrome or the like... not all birth defects are preventable though one of the things that I think the previous program had spent some time on was... folic acid awareness. That can help reduce the likelihood of... a spinal... spina bifida for example.

The relationship between environmental exposures and birth defects aren't as clear. We know that some endocrine disrupting chemicals like the PCB's pesticides are linked to... nervous system defects and developmental problems. But... there's (still) a lot of information that's missing... Same with living near a hazardous waste site or exposure to disinfectant byproducts in drinking water can also put you at increased risk of some of those birth defects. However, you know there just isn't as much information as there is on the maternal side. So more research is needed to really have a better understanding of what the relationships are in the environment."

-Ms. Beauregard changes slide to "Important"

-Ms. Beauregard/ "Something that's important to keep in mind is many times we really don't even know what caused the birth defects. So you know we're focusing on the things that we're more aware of but there are at least- and depending on where you look, there's 65 to 80 percent, (some articles say 50 to 70 %), but within the 65 to 80 (% range)- those are birth defects that are unknown. We just talked about some social, behavioral and environmental factors (that) are linked with abnormal fetal development. And we as a surveillance system monitor the prevalence of the defects over time."

-Ms. Beauregard changes slide to "History of the BCP"

-Ms. Beauregard/ "So just a little background of what the Birth Conditions Program is now and what it was previously. So the BCP was created in 2003 and was located at the Geisel School of Medicine at Dartmouth and previous to that, prior to 2003 my understanding is that they were getting information just from what was documented through vital records and what they could find through hospital discharge records. Initially the program was funded for the 10 years 2003 to 2013... approximately data through the CDC and they collected birth defects for those years. So, I think as we'll talk about... towards the bottom here, they collect data in a five year rolling (period). So, even though you see that the birth conditions program initially lost their funding in 2016, they only collected data up to 2013 because it

was... two to three to five years back rolling that they were collecting the information on. So, again they lost their funding in 2016... That particular program at Dartmouth ended up closing for that period of time before the Zika virus came along and we got... CDC funding as part of the Zika epidemic... I came on around that time when we started surveillance activities just related to Zika so we weren't doing all of the birth defects as the other program had.

And so, the program's 'in-house' now and under Maternal and Child health as we talked previously and not part of Dartmouth any longer. So, once Zika funding ended which was (in) 2018 I believe, time is going by quickly, the program moved under funding through MCH in the block grant. So we're back to being operational and now collecting the data that the previous program had been collecting beginning with uh the year 2018. So as I discussed previously, the data is collected and it's de-identified and it's reported to the NBDPN which is the National Birth Defects Prevention Network and they, along with the CDC, kind of oversee that data.... it's collected over rolling five years so we're just starting in 2018 so we don't have the previous years where the program had stopped before... We may get to that but you know we're just trying to start really from scratch and make sure that we're doing this correctly."

-Ms. Beauregard changes the slide to "Stakeholders of the BCP"

-Ms. Beauregard/ "So our stakeholders are: the CDC and the NBDPM which is the prevention network, families born with a birth condition, healthcare service providers in the hospitals- which is where we get our information from, and community organizations and DHHS."

-Ms. Beauregard changes the slide to "Strengths and Limitations of Registry Data"

-Ms. Beauregard/ "So... the registry data... What is one of its strengths or many of its strengths is (that) it's population based- so it's all of New Hampshire. It's active meaning that... there's many data sources that help us find the information and we're able to cross-check (info) like the birth certificate. And we look at the hospital data... We actually physically look at records and confirm birth defects at the hospital. We do all the 45 birth defects that are recommended by the NBDPN and the CDC... there's certain data elements that we collect to make sure that we're collecting that on all babies, and we try to make sure that
the data is complete.

Prevention and awareness activities previously, for the previous program, are different than they are right now where we're only starting to collect data. We only have the previous programs data to know... what the trends were.... right now we're using social media to disseminate monthly messaging around awareness month so, for example, it's February is heart month. So we would talk about congenital heart defects on our piece of social media. There's smoking awareness or smoking cessation months where we would talk about... the risks of smoking and being pregnant, and... how that can affect the baby. So that's how we're doing our messaging right now... and also connecting families to appropriate programs such as Bureau of Family-Centered Services such as Special Medical Services or Early Intervention if the family needs that.

David, I don't know if you wanted to mention about our prevention and awareness activities? You know we had talked about... our state is fairly small, and the amount of birth defects that we get are very small and we don't necessarily... look at what is going on in New Hampshire, but we look at nationally what the trends are because our data is pulled."

-Dr. Laflamme/ "Yeah. And is that the next slide in the deck or...?"

-Ms. Beauregard/ "I think yours is the next slide."

-Ms. Beauregard changes the slide to "Final Points"

-Dr. Laflamme/ "Okay, there we go. So you know we typically refer to things like this as rare events and while it would be nice to be able to do in-depth studies in New Hampshire, I think there are two limitations that really make that challenging. One is that they're rare events and we don't have the statistical power in terms of the numbers to do an in-depth analysis of rare events often times. That doesn't mean we're not looking at them, it doesn't mean we're not putting them on a map and we're not tracking them... It's challenging to do it for that reason, it's also challenging frankly because of the human resources, right? So... I was talking to some colleagues on a national call with CDC the other day and my colleagues from Wyoming come into this little... Zoom breakout room and there are eight of them that are in the Maternal and Child Health epidemiology unit- and New Hampshire has me for four days a week. So... a lot of states... especially larger states are able to have more in the way of human resources to go after things like this. We are a little bit limited in terms of the workforce as well.

So, our reporting also focuses more on counts instead of rates because of the small number issue. So, when you think about some of the numbers of birth defects... Sue what was the number you gave earlier, in a year, what

might we see in terms of the number of birth defects in NH? Just to refresh everyone's memory."

-Ms. Beauregard/ "So the rate's about 2.7 (%)... we might see... around maybe 300?"

-Dr. Laflamme/ "Okay. So the thing to remember is that those aren't 300 that are all the same defect, right? So you still have to slice that up by the type of defect and there are many types- so our number isn't 300 that we're working with really if you're trying to do an in-depth study. It's often much smaller than that. So... we do some internal analysis where we are doing some mapping and such. Oftentimes because of the small numbers, we're not able to make those things public but it's still useful to us. So you should know that... we're looking at these things, we're watching them, and we're tracking them and reacting to them. It's just not everything can be made public because of the confidentiality reasons.

There are some things that are- so when we pool data, for example the five-year data reports that Suzann was referring to, you know those counts are statewide five years so there's no reason we can't put those numbers out, and we have put those out in the past. We contribute de-identified records to the national data set and to me that's one of the most important things that we can do- so the benefit to New Hampshire is that the studies that we can't do because of our small numbers get done with that larger pooled data from various states. So it's de-identified so we don't have to worry about risks there but the learning comes from those studies- from contributing to those. So when Sue talks about birth defects...week or month, messaging around that- a lot of those messages come from the research that done that's done with this pooled data. To me that's one of the best places that we can act on prevention of birth defects and understanding what's happening is using that pool data, the national data... The CDC has teams of people working on this and we can really learn from that. So, we benefit not only from greater numbers but also from the expertise of their increase in human resources, right?

Some other sources of data that are good for you to know about... PRAM stands for the Pregnancy Risk Assessment Monitoring System. It's a survey of women who have given birth in New Hampshire. We sample... a little over a thousand women a year. The response rate varies from year to year but it's women who gave birth within the last year and we asked questions about prenatally, perinatally, and postpartum. We've had that ongoing for several years now and you can find a lot of good reports including... tables of data in addition to more in-depth reports on the DHHS webpage for PRAMS. If you search PRAMS New Hampshire that will come up pretty quick. There's a main

page and then there's a publications page. Make sure you go to the publications page.

The birth certificate and death certificates from Vital Records- which is over with the Department of State in New Hampshire- I think we're the only state like that- those provide some information and we do have good access to those. There's the All-Payer Claims data and Hospital Discharges that we also look at.

And then finally in terms of data, Sue referenced Zika earlier, so 'Emerging and Potential' issues. Sometimes... we don't know until we're in something that there's more information needed. So, with Zika, the example would be we wanted to know 'travel status' and we didn't have a way of doing that. Well, we now have some better ways developed of doing those things very quickly where... literally overnight, we can get a question or two out there connected to vital records where we can start asking for some information like that. So, when COVID hit for example, we moved some questions related to opioids off of the birth certificate and put COVID questions on the birth certificate and the death certificate-... they're temporary.... so that we could very quickly start getting some information for that... so that's really helping us a lot. Based on some of the maternal death data that we've looked at, we're looking at some harm reduction things... was there documentation of discussion about Naloxone or Narcan if a mom who gave birth, if there was some prenatal substance exposure reported for example. So those are the kinds of things that we can sort of do a lot better than we could several years ago. I started back in 2003 in this role and in the last three to four years we've really made great strides. I know you had a presentation last month I think it was, or last meeting, from some colleagues, Andrew Chalsma, David Wieters, and others about the new data infrastructure and the Enterprise Business Intelligence (EBI) and that's certainly benefiting us as well. And that we're able to not only access but prepare and present and analyze especially visual analytics so much better than we used to be able to do. So, that project's having an impact on the work that we do. Also, Sue and I went back and forth trying to figure out... what it is this committee would like to know from us so I hope that this overview gives you a sense of what's happening and what can be done. But if we haven't hit on the things you're interested in, please let us know ask us questions."

-Ms. Beauregard/ "I think one of the things that I would add... with regards to the Birth Defects Registry... I mentioned that... we collect information on the 45 birth defects that the CDC and the network requests of us. They recommend those. That's part of our RSA so we don't change any of that. We go by what they ask us to collect on and that helps with that data David

was talking about- the pooled data. All the states that are collecting data are collecting the same information so that the information... makes sense for everyone. So we're all collecting... Massachusetts- I mean everyone has different laws and they (Massachusetts) might collect a few more things based on whatever their laws say that they can. But you know, for us, that's how ours is written. We go off on the recommendations of what the CDC and the Birth Defects Prevention Network recommend that we do."

"Please ask questions."

-Hon. Murphy/ "Rep. Salloway?"

-Rep. Salloway/ "Dr. Laflamme. Quick question. You've indicated that one of the difficulties in getting a data set that you can really work with is the small numbers. You've also indicated, I think very cleverly, is that you can get bigger data sets by aggregating data over time; and secondly, certainly by participating in the federal database, is there any effort being put together to regionalize a database that is to work conjointly with Maine, Vermont and Massachusetts to create a regional database which might speak to regional environmental risks?"

-Dr. Laflamme/ "I'm not aware of any effort like that. I've heard rumblings about it over the years... we've heard ideas like that come up in a variety of contexts including birth
defects, but not just birth defects. But I'm not aware of that. I would say also that
aggregating data over years I think typically has sort of a shelf life in terms of how many years you should put together before you start hiding what's actually going on- because things change over the years. So being able to know what's happening over time can be challenging. Dr. Woods? Oh sorry, I'm not sure I'm supposed to do that."

-Rep. Woods/ "Oh, yeah. I just noticed that this is an opt-out program and in other venues ... the committee I'm on (with) Dr. Salloway, as well with vaccines... we're wrestling with this opt-in/opt-out situation. Has that dimension been a problem for your data collection at all- either in terms of numbers or administration of the opt-in/ opt-out aspect?"

-Ms. Beauregard/ "My understanding from the previous program is that they didn't feel as though the numbers were large enough to make a difference with that and I don't
remember what the opt-out rate was. That was before my time. Currently, I haven't had anybody opt out that I've sent out... but yes they can decide whether or not they want to be part of the registry.... They're sent

information... once we've confirmed a birth defect and they're asked... 'Would you like to be part of the registry or not?' and if they don't want to be, then we don't use that data. And that's for confirmed birth defects. I hope that answers your question."

-Hon. Murphy/ "Representative Nelson?"

-Rep. Nelson/ "Thank you. My question is... Does the dad's history fit into all of this? For example, if (known does) the dad's... drug use or whatever... I don't know if that's part of
the cause of birth defects or the age of dad, etc."

-Ms. Beauregard/ "So, for the previous birth defects program, and for this one, they do (consider) age of dad, age of mom and dad, and its race and ethnicity that are also...
broken out so it's being... looked at- but I haven't had anything that says specifically we need to target dads on whatever is happening. But it is something... that age of dad is collected."

-Hon. Murphy/ "Honorable Messmer?"

-Hon. Messmer/ "So, I was looking at the list of birth defects that are on the report- the NBDS National Birth Defects Registry report. Do you collect, I assume you would as part of the Zika program, head circumference and body weight- birth weight? And... were those previously collected during the initial grant funding back in 2003? And do you surveil that data?"

-Dr. Laflamme/ "I can take that one Sue, if you want. I'm not sure if you meant to say
birth weight or not. (Hon. Messmer confirms that she did.) Birth weight and gestational age are both on the birth certificate for a long time so that has not changed. But the two new things that we put on there as a result of the Zika surveillance, were head circumference and gestational length- not the 'in-weeks', but the length of the infant."

-Hon. Messmer/ "Right. So I guess my question is, 'Do you surveil that data to see if there
are potential trends in certain areas of the state?" (Dr. Laflamme is nodding in the affirmative.)

-Ms. Beauregard/ "So as far as the Birth Defects Registry...there are data elements that are required that we do, but we don't report that. We report whatever it is that they're looking for, for the data elements. We have the information from the previous program so

I know gestational age and length and head circumference... are just parts of... what we want to know about the baby. But with regards to the birth defect itself, that's not something that is aggregate data that goes out. It's primarily...the birth defect, the race, ethnicity, mom age, dad age."

-Hon. Messmer/ "So can I have a follow-up question? So particularly with respect to low birth weight or to birth weight, do you surveil that information periodically on a yearly basis, and in a sense, to look at geospatial trends for that information across the state? Are you able to do that?"

-Dr. Laflamme/ "Yes to both questions. Yes we can, and yes we do."

-Hon. Messmer/ "And do you report that data anywhere?"

-Dr. Laflamme/ "Yeah, typically now that's going to an online format so that would be part of Wisdom for example, if you're familiar with that system."

-Hon. Messmer/ "Thank you."

-Ms. Beauregard/ "And just as an aside, that's not part of the Birth Defects Registry that's something different."

-Hon. Murphy/ "Representative Nelson is your hand up to ask a question or is that up from last time?"

-Rep. Nelson/ "Last time, sorry."

-Hon. Murphy/ "No worries. I have a question actually myself. I'm wondering if there's a mechanism in place for documentation of data on birth defects not immediately recognized at birth. I mean, is it from... pediatricians, or how does that information come to you?"

-Ms. Beauregard/ "Well that's part of the rolling years, too. So for example, if I'm requesting information from a given hospital for the birth defects that we monitor for these years, and... baby didn't show up in 2016 but it was discovered that it
had a heart defect in 2018, I would find it in 2018 because that's when it was found. So, baby's two years old or however old it is- that baby might be four- but I see it because of the year that I asked for."

-Hon. Murphy/ "Okay, thank you. And I actually have one more question. Am I correct that the data on babies born with birth defects outside of here- so just say, I'm thinking Boston, may not be available to the registry? Is that true?"

-Ms. Beauregard/ "It's possible. Well... we might find it through the birth certificate- correct me if I'm wrong, David but I think that's probably where we would find it. We don't have any relationships with Boston Children's or Mass General Children's for residents who had a high risk pregnancy whose baby was born there."

-Dr. Laflamme/ "Right, so for vital records, if it's a birth or death certificate that might have that information on it we will get that eventually if they're a New Hampshire resident receiving care out of state. If, say they were born or died out of state. For prenatal care for example, we wouldn't get those records."

-Ms. Beauregard/ "There's an outside chance that in this previous scenario that you asked about- so you know baby was born out of state in whatever (say) 2013; and in 2018 went to a hospital for the heart defect that it was born with but we didn't know about, I might find it that way. So if they went to a local hospital then I'd find out, oh we have a resident that I didn't realize... delivered out of state, so that's another way to find it but it's not that we're going to find them all that way. I mean what we don't know, we don't know until it pops up."

-Hon. Murphy/ "Thank you."

-Dr. Laflamme/ "I'll add something on the cross-border issue. That's a great question. You know about 10 percent of our births in New Hampshire happen out of state and mainly for two reasons. One is that we're population dense on the southern tier so it's just more convenient to go right across the border. But the second reason is typically a high-risk pregnancy so they're maybe going to Boston for specialty care where some of these kids might be found, right? So this is also an issue with our maternal mortality work and so with some CDC funding we designated a part of that over the past year to have the UNH Health Law Team look into cross-border data sharing issues. And I think that that work will end up informing some of the work that we're doing with birth conditions as well. To sort of figure out you know... where does the authority come from, what are the barriers if there are any, and how do we go about getting data when there's care perhaps in both states? How do we get all of that so we're actively working on that issue- really leading the way in the country for that."

-Hon. Murphy/ "Thank you. Representative Woods?"

-Rep. Woods/ "As I mentioned at the outset I have another commission I've gotta' bounce out on and I'll wait to hear from Representative Salloway

relative to our subcommittee relative to that. And then, finally sort of a philosophical musing at the end... Nearing 80, I would consider aging a birth defect!" (Laughter all around.)

-Hon. Murphy/ (Laughing) "Thank you Representative! See you later, Gary."

-Dr. Laflamme/ "We'll add that to the list!" (more laughter)

-(Rep. Woods exits the meeting at 12:54 PM)

-Hon. Murphy/ "Other questions? Ms. Costello?"

-Ms. Costello/ "Hi, David. This is not a plant but is it possible for this group to have a copy
of what is collected on the PRAMS?"

-Dr. Laflamme/ "Yeah, that's on the website."

-Ms. Costello/ "Is it? Okay."

-Dr. Laflamme/ "Yeah, absolutely. So the questionnaires they change slightly over
the course of, I think we're on the second version so there's only a couple of versions there but the questionnaire that we use is there, that's the best way to get a feel for what's in the data set. But there are also data tables with percentages, confidence intervals, counts, all that on the website. So we do pretty well at keeping up with that and the 2019 PRAMS data just dropped. We just got that back from CDC. They do the wading-
it's a complex sample survey so it takes a little work to do the wading, and then to do the analysis that we do as well. "

-Ms. Costello/ "Follow-up if I may?"

-Hon. Murphy/ "Sure, Ms. Costello."

-Ms. Costello/ "Is the PRAMS fairly consistent year to year?"

-Dr. Laflamme/ "Well, I mean things change year to year, right? So for example, the percentage of women falling off of health insurance after the birth- that changed a lot when ACA came on and we saw a big difference there. So, we actually have a data brief
about that on the website. But in terms of... if a metric is truly staying the same over the years, yeah, PRAMS is pretty good at keeping that fairly steady."

-Ms. Costello/ "Thank you."

-Hon. Murphy/ "Any other questions for our presenters?"

-Ms. Costello/ "This was really helpful. I just wanted to offer a comment that the Data
Subcommittee is going to be meeting again in mid-March and we may have some more
questions Suzanne and David after that meeting, too. We can reserve the right to pick your brains again!"

-Dr. Laflamme/ "Always happy to talk data."

-Hon. Murphy/ "Great! That's a good point... Thank you, Amy. Well, thank you so much
Sue and Dr. Laflamme for your excellent presentation... and all the data and surveillance
work that you do. It certainly helped us to have a better understanding of birth defects and birth outcomes in New Hampshire. But as Amy said, I think we'll certainly have some more questions when we start to... look at our own goals within the commission. So, I thank you both for being here today. We appreciate it!"

-Ms. Beauregard/ "Happy to be here."

-Dr. Laflamme/ "Thank you for having us."

-Hon. Murphy/ "That was helpful. I know we were all... looking forward to this and I know we're wondering also about the (upcoming) Special Ed impacts (presentation). I think that would be the last presentation that we're going to have (scheduled). I don't know if Jenny.... Dr./ Sen. Sherman discussed with you potentially setting that up?"

-Ms. Horgan/ "The Department of Education presentation? Yes. He and I have chatted about it so he's hoping to kind of narrow in the focus on who we're looking to have present over the course of the next coming weeks and going from there."

-Hon. Murphy/ "Great. Were there any other presentations that we were looking to have, or was that the last one that came up in conversation during our subcommittee meetings?"

-Ms. Horgan/ "It was the last one I was aware of."

-Hon. Murphy/ "I think so as well... We may have a shorter meeting... We have a bit of scheduling things to discuss but, otherwise I think we... got to everything in terms of the
Agenda. Any further discussion about anything that we need to talk about before our next meeting?"

-Rep. Salloway/ "Just an observation. I'm hearing Dr. Laflamme talk about limitations on data and I understand what he's saying about aggregating over time. I like the idea of aggregating regionally. I would point out in addition, that we have several commissions
operating simultaneously- one of which is the Commission on Rare Diseases and that database on rare diseases probably should work integral with the data on birth defects. And what we're looking at is outcomes. And I think that given our experience, especially with PFAS, and I'm assuming that Representative Messmer is hearing me say this
especially when we look at a risk factor like PFAS, we really need to find a way to be aggregating data across diagnoses- across outcomes, rather than concentrating on outcomes. That's just a... philosophical observation."

-Ms Costello/ "Are you on that commission?"

-Rep. Salloway/ "No they were smart enough to keep me off."

-Dr. Bush/ "But I will say that (Dr.) Sai Cherala who oversees the Bureau of Population Health and Community Services, where Maternal Child/ Children sit. She serves on that
commission so she both has her hand in the Rare Disease Registry as well as the Birth Defects Registry. So she at least from a leadership perspective at the health department is overseeing/ involved in both."

-Ms. Costello/ "Katie, do you think it is possible to get a synopsis of where that commission is, or something, from Sai?"

-Dr. Bush/ "Yeah, I think that would be interesting."

-Ms. Costello/ "I want to be respectful of the number of presentations that we're asking from DHHS in the middle of a pandemic."

-Dr. Bush/ "Right. And so maybe there's someone else, maybe that I don't know."

-Ms. Costello/ "Someone that could share the synopsis and timeline about where that's going. I think that's a really good point Representative Salloway."

-Dr. Bush/ "I can certainly ask on my end but maybe if any of you are connected to
other members of that commission like Amy said, rather than lean on the Health Department staff, if there's someone else who serves on that commission who could give a presentation, that might be worthwhile."

-Hon. Murphy/ "Do we know who else sits on that commission?"

-Hon. Messmer/ "I believe Senator Rosenwald does."

-Dr. Bush/ "You know to be honest, I've been thinking a lot about... the surveillance. It's challenging, and like they said today, we have such rare numbers we're unlikely to have enough statistical power to see a signal in New Hampshire- probably even to see a signal in New England. That's why contributing to these national databases is so meaningful. And I do wonder... as we think about future agenda items, I feel like there's some work to do to prioritize, right? So what do we want to conduct surveillance on, where are the real gaps, and should part of our work here be to help prioritize those gaps or identify those gaps and then prioritize the follow-up work, right? So, is the priority PFAS and related outcomes, and do we think that's a gap? Or is it other neurodevelopmental outcomes? You know i feel like we've been a little bit stuck I think in that there's a whole big world of environmental health related outcomes, and if we could narrow our scope, then we might make some progress towards a specific goal. So I just keep coming back to this. How can this group help...clarify priorities for environmental health in New Hampshire?"

-Hon. Messmer/ "I guess one of the things that really was a bit shocking to me today was the paucity of data that exists on...you know this is something that we all really ought to...
you know the children- the impact on our children of the state is what is the most critical issue in my opinion to be tracking. And to see that, no offense to the presenters whatsoever, but the funding that was supporting some of that work
comes and goes and that affects what's being collected and... who's looking over that and
that to me is just... a shocking... recognition of a problem... and connecting that to things like special needs educational outcomes in the end. I mean the cost associated with... birth outcomes that could be prevented is just shocking to me to see that this has happened

over time. And, you know if there's an effort that we can make to go back and
collect/ re-collect some of that older data to try to put it to use... And the legislators here, if we can figure out ways to make sure that that kind of activity is funded in our state, it is very critical in my opinion to do that."

-Ms. Costello/ "Mindy just to clarify, are you speaking about the lack of funding for MCH activities like when David compared New Mexico with New Hampshire?"

-Hon. Messmer/ "Yeah. And the break in time where we weren't collecting or reporting that
data. I mean I just looked at the national site, the NBDPN, and it says New Hampshire is not collecting data. I know they are now, but it's... just kind of shocking that you know the funding needs to be consistent and we need to really prioritize the health of our children in this state for the future. Especially with respect to environmental exposures where we know they're especially vulnerable to the effects of those exposures with lead, arsenic... the list goes on. I know Representative Salloway is dying to say something here. Well, the funding is what i was talking about."

-Rep. Salloway/ "I want to build on your work but you just brought up, I think, what is the most significant example that we ought to build on. So when we discovered that there were outcomes of lead toxicity, our indicator was the outcomes. We then engaged in a serum testing program for children under a year old that enabled us to identify risks and exposures prior to outcomes. So I think relying on outcomes as your measure of the effectiveness of your program is short-sighted. We have to start looking at exposures. Now go back to your own work on PFAS and it becomes essential for us to monitor PFAS exposures at... all age levels because the outcomes may come much later- but we've got to know that the exposures are there. I'll be quiet."

-Hon. Murphy/ "Thank you Representative Salloway. I totally agree and... I know people in PFAS impacted communities like ours feel the same way-that that there has to
be monitoring. You know, we're looking at generations now of families that are exposed and... (have continued) ongoing exposure... I know citizens have concerns about health outcomes/impacts that... we think we're seeing... I totally agree. I think that this is one of the great things about the Data Subcommittee... We're looking to identify... you make a great point... we've got to sort of narrow it down... but I think we know, it's
become clear to us, some of those factors that we really have to focus on."

-Hon. Murphy/ "Mr. Wimsatt?"

-Mr. Wimasatt/ "Yeah, I have a question as kind of an arm's length observer of... hearing and learning over the last few years about a lot of these various data collection and health outcome reporting programs. They all seem to be separate. They all seem to be very vulnerable to funding lapses and that sort of thing. I'm thinking, aren't those programs all getting information from the same group of people? It's physicians and doctor's offices and hospitals. I'm wondering, and again I don't know because I am so arms-length on these things, but, has there ever been an effort to sort of centralize that data collection so that... if you're a hospital or provider you've got this menu of conditions or diagnoses or whatever it is that you need to report to a central reporting agency or organization every week or every month or whatever frequency it is so that... then maybe... the cost of it could come down?... and maybe those individual things would be less vulnerable to lapses in funding... For instance, the Birth Defects Program- you know, the folks who process that data and collect it and manipulate it and try to act on it. Maybe they don't get funded for a few years, but the data would still be being collected so when they came around again they wouldn't have lost five years of data like Mindy was talking about. And I'm just asking... it's probably beyond the purview of this committee, but it just seems you know to have each of these things subject to... an individual grant just seems really inefficient and really .... kind of treacherous because... it's clearly going to happen. I mean we experience this all the time. Grants that you get for 20 years all of a sudden you don't get them for a few years. That happened with our Apple Tree grant. So... to the extent that this could be somehow centralized so they don't have it so vulnerable... is anyone looking at that?'

-Hon. Murphy/ "Excellent point. Hon. Messmer?"

-Hon. Messmer/ "I was going to suggest something else... we can continue on this, but I think that was what... came out of last meeting- at least I did- was the efforts to centralize data collection under the EBI program would be really beneficial for all of these programs. But I do know... they're specifically tied with their blinders on to do certain things that grants allow them to do.... That's why I called on the legislators who are listening here to... try to support some of these measures- to continue the funding on some of these things throughout- so there's no breaks in the funding. Or... be open to allowing that kind of funding to be passed on to the budgets. But the other question, the other thing I was going to say, and Rep. Salloway may be able to weigh in here, but the first year of this commission we had a presentation by Professor Robert Woodward from UNH. Since that time he's actually been part of some really important work that has looked at arsenic exposure in children and the impacts of that- the cost, and how they assess the quality

of life, quality of years moving forward. I think I was wondering if that wouldn't be another good idea to have him come back and talk about that- especially where we're talking about this. He's really made some... that group was really supportive... was actually why the arsenic standard I think passed through the Legislature- because that was very compelling work on the cost of inaction, basically with respect to our children. So, maybe we could ask him to come back if people are willing."

-Hon. Murphy/ "Great suggestion." Rep. Salloway?"

-Rep. Salloway/ "We live in a state where privacy is a very important value. But I think that the world has changed. I'm a great believer in protection of privacy. I don't have- what do you call it- an 'Easy Pass'? I don't want people to know where I'm driving, how fast I'm driving. It's my personal decision. So, I like the idea of protecting privacy. However, as we take a look at the sheer number of environmental risks that are out there, and now the sheer number of infectious disease risks that are out there, I think it's absolutely imperative that we have consistent reliable reporting, certainly of outcomes, and possibly of risk factors, and that's something that we as legislators can mandate. You know, we've done it with lead and I think it may be time to say this is more important than privacy."

-Hon. Murphy/ "Ms. Costello?"

-Ms. Costello/ "I would second that motion- if it were a motion. And also I think I'm optimistic about under the current administration that there may be opportunities
to build public health data infrastructure going forward and as that comes forward to support that movement through Governor and Council. I would anticipate... money for both public health infrastructure but the data infrastructure as well."

-Hon. Messmer/ "Federal money, right?"

-Ms. Costello/ "Yes."

-Rep. Salloway/ "A recommendation for that could come out of this commission."

-Ms. Costello/ "To watch for it or to..."

-Hon. Messmer/ "Make it up."

-Rep. Salloway/ "To write the legislation to mandate... data collection."

-Ms. Costello/ "Yeah, I guess I was speaking more to... as federal monies become available. Are you suggesting to write state legislation related to federal?"

-Rep. Salloway/ "No, writing state legislation saying that... people have to participate in reporting birth outcomes."

-Ms. Costello/ "Oh I see it."

-Rep. Salloway/ "There's no opt out. You've got to report. Physicians have to report. Hospitals have to report... has to be reported. You know, we've done that with lead."

-Ms. Costello/ "Yeah, I think... there's probably systems that are getting it so maybe we're thinking about the same thing. But creating registries for everything may not may be the right avenue. It's incredibly time consuming but in some way, being able to get more information- either from hospital discharge claims electronic medical record in a timely way, that might allow you to get more than one condition at a time. But yeah, just to clarify, my point was really... to watch for the opportunities around federal funding for public health data infrastructure and wherever we can, to be able to support its expedient reception at the state.

Hon. Murphy/ "Representative Nelson did you have something you wanted to ask or suggest?"

-Rep. Nelson/ "No. I'm curious. Using arsenic and lead as a source... Do they collect data prior to a pregnancy? The data, or the person had the lead for example before they got pregnant or they're having it while they're pregnant? And does the lead exposure whatever of the dad- mom's been good- she's lived somewhere else on bottled water and it's good, but the dad drinks all this stuff. Is there a factor that checks on dad to see how that could affect the sperm, you know, the whole nine yards?"

-Rep. Salloway/ "Representative Nelson. They don't check dad. That data comes in the
blood test that's done on children."

-Rep. Nelson/ "Okay."

-Rep. Salloway/ "I think that's the only data."

-Dr. Bush/ "I'm not sure that there's a lot of evidence to suggest that high levels of lead in in a dad would lead to birth outcomes or developmental delays. I think we know that lead can pass through the placenta. It can also pass through the blood-brain barrier. It's also if it's stored in the bones actually during pregnancy of the mother, can actually get pulled out, and because it mimics calcium the way it's stored in bones, can also then get pulled out of bones and transferred through the placenta to the baby. So I think in most cases we're mostly worried about previous maternal exposure and then obviously once the baby's out, any exposure early in life. I'm not even sure... you know - Jackson's two and a half now, I don't even know that I had a lead test during pregnancy. So I'm not sure that we're testing pregnant mothers actually. It's really at the point of birth we check and then... it's mandated to check at one and two during their pediatric screenings- which is really when kids are on the floor, they're putting their hands in their mouth. It's when we know their exposure risk is highest."

-Hon. Murphy/ "So much of this...I think of Mr. Wimsatt's point. I mean if we had things much more centralized... instead of 20 registries and waiting... worrying about gaps in funding. I just look at the work that we're trying to do... the data we're trying to collect from many different places and... in some instances it's there. It's just not necessarily readily accessible. I agree. I think... certainly some legislative action and... those kinds of things... recommendations that that we make out of this this commission can certainly help drive some change."

Dr. Bush/ "Yeah, I do want to reiterate what David, Dr. Laflamme said. You know, it's a human resource issue as much as anything. We have claims data. We have hospital data. But then we have a part-time epidemiologist who can make sense of that data. So... in a lot of cases the data are there. It's really that we need the analytical power then to make sense of the data. And I think... those systems do exist... and I don't know Margaret if you wanted to speak at all, but... electronic medical records are where this lives. And to Representative Salloway's point, in New Hampshire... those systems aren't super interoperable because of privacy reasons. In other states those systems are moving towards a little bit more interoperability, right, but we know... there are multiple vendors. So, there are multiple systems, multiple electronic medical records systems within the state rather than... one statewide system that all talks. So I think it's sort of still in its infancy maybe, in New Hampshire- these kind of reporting systems that allow that interoperability. But I don't know a lot about electronic medical records- that's kind of my understanding. But we do have these other surveillance systems- like claims, like hospital data, like Birth Defects Registry."

-Hon. Murphy/ "Honorable Messmer?"

-Hon. Messmer/ "Yes. This discussion on lead reminded me that in the last session of this commission we had come to the decision that we should get someone to come speak to us about lead in the schools or at least the facilities- the drinking water issues and the facilities themselves. I don't know if Katie knows anybody that could do that, but that would be something... Because that does cover serum lead levels in children but it doesn't look at all at drinking water exposure in schools, although I know there has been some sampling of lead and drinking water in schools. But also it might be a good idea to get an update on ventilation systems at the same time since we're dealing with COVID. I don't know if there has been an evaluation in the SAU's across the state on ventilation issues... not with respect to lead, I'm talking about COVID now. But maybe both could happen at the same."

-Hon. Murphy/ "Good point. I'm wondering if maybe when Senator Sherman and Jenny are reaching out to the Department of Ed, maybe... we could have somebody... talking about the Special Ed piece, and then somebody more about the buildings... ventilation and those...issues."

-Hon. Murphy/ "Ms. DiTulio, you had your hand up."

-Ms. DiTulio/ "Yes, I just wanted to respond, Katie, to your point. The idea of the electronic medical record in its conceptual phase was a good one, but the problems ensued in that just what you're talking about. There are so many different vendors and so, your large systems certainly have the ability to share information within the system, but it's not turned out to be an easy way to have collective data. And so, in theory, it's a wonderful way to try and do it, but in reality it's been somewhat of a disaster in terms of all the potential uses- at least in the in the study I've done of it."

-Hon. Murphy/ "Any other discussion? Well, seeing none, I think we have a lot of action items then from the last couple of meetings. One, we need to schedule the Education Subcommittee meeting. We're waiting to hear bout the Department of Ed presentation...Was it at the next meeting we were going to talk about maybe looking at the membership of the subcommittees because we have new members and they may be interested in joining us on the subcommittees? What else do we have? And then I know Senator Sherman had mentioned at one of the... I think it was our last meeting... he wanted us... in the Education Subcommittee... (to think) about what we can do to develop ... an environmental curriculum for CME's for physicians."

-Rep. Salloway/ "Yup." Nodding head affirmatively.

-Hon. Murphy/ "That was one of... the action items he left us." "How are we going to come up with a date for that (Education Subcommittee meeting), Rep. Salloway?"

-Rep. Salloway/ "I was going to ask Jenny Horgan who is the master of this sort of thing
to help me schedule a meeting."

-Hon. Murphy/ "Okay. And then just notify us? That's great."

-Rep. Salloway/ "I do what she tells me to do."

-Hon. Murphy/ "Thank you. Seeing nothing else on the agenda, I will entertain a Motion to Adjourn."
-Rep. Salloway/ "So moved."
-Hon. Murphy/ "Okay. Thank you. Any seconds?"

Notes Hon. Messmer raises hand to second Rep. Salloway's Motion to Adjourn... "Honorable Messmer."

-Hon. Murphy/ "Thank you everybody...

-Rep. Salloway/ "Well done."

-Ms. Clostello/ "Thank you."

-Ms. Horgan/ "So sorry. We have to take a roll roll."

-Hon. Murphy/ "Awesome. All right, I will get my list... Try to go through who I know is here." Begins to call the roll...

Representative Salloway- yes
Dr. Bush- yes
Ms. DiTulio- yes
Hon. Mesmer- yes
Ms. Costello- yes
Mr. Wimsatt- yes
Representative Nelson- yes
Representative McMahon- yes
Hon. Murphy- yes

*"Motion to Adjourn" Roll Call: 9 yea / 0 nay

-Hon. Murphy/ "Well thank you, everybody!"

Meeting and video ended at 1:22:55 PM.
Notes (includes DHHS "Birth Defects Registry" PDF PowerPoint presentation) respectfully submitted and emailed to all members 3/18/21.
Hon. Nancy Murphy, Clerk

AN ACT reestablishing the commission to study environmentally-triggered chronic illness.
SB 85, Chapter 229:2, Laws of 2019

Regular Meeting (Remote via Zoom) of the New Hampshire SB85 Commission to Study Environmentally-Triggered Chronic Illness

April 16, 2021
12-2 PM Remote mtg. via Zoom

-Senator Sherman called the meeting to order and read the Right-to-Know script. -Presentation by Bob Woodward on Drinking Water Testing
-Discussion occurred regarding the Commission minutes and the taking of minutes moving forward.
-Discussion of potential upcoming meetings and presentations on lead in water and Department of Education services.
-Meeting Adjourned

Commission to Study Environmentally-triggered Chronic Illness
Regular Meeting September 17, 2021
Minutes

1. Attendance—
    a. Present – Sen. Sherman, Sen. Riccardi, Karen Craver (NH DES), Margaret DiTulio (NH Nurse Practitioner Assoc.),Kathleen Bush (DHHS), Nancy Murphy (Community Member), Rep. Nelson, Rep. Woods.
    b. Virtual attendance – Rep. Gay, Amy Costello (IHPP), Mindi Messmer (Community Member).
    c. Absent – Rep. Salloway, Dan Tzizik (NH Med. Society), Rep. Mooney, Robert Timmons (NHHA).
2. Minutes --- not available for the previous meeting of the Commission.
3. Presentation ---"Results from the 2019 NH TrACE Study" (TrACE = Tracking and Assessment of Chemical Exposures). Presenters: Amanda Cosser, MPH and Nicholas Shonka, MS both of DHHS Division of Public Health Services.
    a. Chemicals reported: Lead, Mercury, Arsenic, Uranium, PFOA&PFOS,
4. Primarily water sampling augmented in selected situations with blood and Call to order --- 11:35 a.m. by Chairman Sen. Sherman
    a. urine testing.
    b. Multiple demographic parameters identified.
    c. Discussion----
        i. Importance of continued funding beyond 2024 perhaps necessitating supportive legislation.
        ii. Importance of education---timing of testing as well as ongoing monitoring accompanied by access to remediation.
    d. Full presentation available on the Commission website.
5. Report due November 1st:
    a. Next Commission meeting will be devoted to consideration of material to be include this report.
    b. Material will be circulated (with attention to "right to know" issues) in preparation for consideration in the report.
    c. Suggestion for possible inclusion would be appreciated for this discussion.
6. Next meeting: Tuesday, Oct. 19 1 -3 p.m.
7. Adjourned: 12:05 p.m.

Submitted (cautiously) by Rep Gary Woods

APPENDIX II:

DES/DPHS Progress Reports

Jeffrey A. Meyers
Commissioner

Lisa M. Morris
Director

STATE OF NEW HAMPSHIRE

DEPARTMENT OF HEALTH AND HUMAN SERVICES

DIVISION OF PUBLIC HEALTH SERVICES

29 HAZEN DRIVE, CONCORD, NH 03301
603-271-4501 1-800-852-3345 Ext. 4501
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September 10, 2019

Honorable Jeffrey Salloway, Acting Chair
Commission to Study Environmentally-triggered Chronic Illness
Legislative Office Building/Room 205
Concord, NH 03301

Re: ***Report on Data Sharing between the New Hampshire Departments of Health and Human Services (DHHS) and Environmental Services (DES)*** (RSA 126-A:76, III) Chapter 229:5, Laws of 2019

Dear Representative Salloway:

As required by SB 85 (2019), an act reestablishing the commission to study Environmentally-triggered chronic illness, please find attached a report (that represents the joint work of DHHS and DES) on data sharing practices and the results of a 2-way pilot project between the departments on arsenic in drinking water which provides environmental data and examines health impacts as required under paragraph I.

The following documents are enclosed:

- SB 85 DHHS/DES progress report (data sharing and arsenic pilot project)
- Memorandum of Agreement (DHHS/DES)
- HB 1356 (2018) – preliminary report

Department staff will be presenting the report to the Commission to Study Environmentally-triggered Chronic Illness during its initial meeting scheduled for September 17, 2019. Please let us know if you have any questions.

Respectfully Submitted,

Lisa Morris, Director
NH Dept. of Health & Human Services
Division of Public Health Services

Mike Wimsatt, Director
NH Dept. of Environmental Services
Waste Management Division

Progress Report for SB85
Building on Preliminary HB 1356 Legislative Report

Submitted by:

New Hampshire Department of Health and Human Services
Division of Public Health Services
&
New Hampshire Department of Environmental Services

September 2019

Table of Contents

Introduction

This is the initial report related to Senate Bill (SB) 85 (2019), which directs the New Hampshire (NH) Department of Environmental Services (DES) and the Department of Health and Human Services (DHHS) to improve coordination and collaboration as it relates to environmental health, with a specific focus on data sharing.

This Report includes a summary of background information, the existing Memorandum of Agreement between DES and DHHS, current data sharing practices between the two agencies, the Pilot Project on arsenic and bladder cancer, current collaborations, and recommendations for future work.

Background

Senate Bill (SB) 85 (2019), re-established a legislative commission to study environmentally-triggered chronic illness. This builds on previous work related to House Bill (HB) 511 (2017) and HB 1356 (2018). This work is focused on conducting environmental health surveillance and improving coordination and collaboration between DES and DHHS in order to allocate resources efficiently to reduce exposure to environmental contaminants and prevent disease.

The SB 85 Statement of Intent reads as follows: "The general court recognizes that nearly half of adults in the United States have at least one chronic health condition and chronic diseases are responsible for increased health care costs. Seventy percent of health care costs in the United States are for chronic diseases. Some chronic diseases are known or thought to be associated with environmental causes. According to the Centers for Disease Control, the state of New Hampshire has the highest rates of people with bladder, breast, esophageal, and pediatric cancer in the country. In addition, a double pediatric cancer cluster was identified in the seacoast of New Hampshire in 2014. Therefore, the general court hereby establishes the commission to study environmentally-triggered chronic illness."

HB 511 (2017) established a legislative commission to study environmentally-triggered chronic illness.

HB 1356 (2018), charged DES and DHHS to develop and implement a method by which the departments share certain health outcome and environmental data. The HB 1356 Preliminary Report submitted in August 2018 includes more information on the status of the activities listed below and is attached in the Appendix.

Specifically, the departments were tasked to:

- Update a memorandum of agreement related to data sharing;
- Sign a joint standard operating procedure on how data layers can be shared between the two departments to identify linkages between environmental contaminants and health outcomes;
- Hold a presentation on the departments' ongoing, joint efforts under the Centers for Disease Control and Prevention environmental public health tracking cooperative agreement; and

- Compile a report describing and estimating the cost to perform a 2-way pilot project between the departments on arsenic in drinking water, where both health effects and environmental data exist.

Memorandum of Agreement

The Memorandum of Agreement (MOA) directly aligns with the primary goals of DES and DHHS to protect, maintain, and improve the health of all New Hampshire citizens. Moreover, it supports data sharing and collaboration between the two agencies.

The MOA (signed in August 2018) focuses on environmental health data sharing activities agreed to by DES and DHHS and describes responsibilities of both agencies. Both agencies will review this MOA on an annual basis to ensure that it reflects current Department initiatives focused on data and information. The MOA is attached in the Appendix.

Data Sharing Practices

Accessing Public Health Data

State and federal regulations (e.g., HIPAA Privacy Rule) require appropriate safeguards to protect the privacy of personal health information (PHI), and sets limits and conditions on how such data are used and disclosed. Sharing health-related data must follow specific protocols such as data sharing agreements or information exchange agreements.

In order to access public health data administered by the Bureau of Public Health Statistics and Informatics (BPHSI) within DPHS DHHS, such as NH Cancer Registry Data or Vital Records Data, a formal Data Request must be submitted to the Health Statistics and Data Management (HSDM) Section (https://www.dhhs.nh.gov/dphs/hsdm/requests.htm).

The Data Request Process is overseen by the HSDM Section within BPHSI DPHS DHHS. The request process may include a Data Request Application, a Data Sharing Agreement, an Information Exchange Agreement, or official Institutional Review Board (IRB) Approval depending on who is requesting the data, what data format is being requested, and the purpose of the request. When summary or aggregate data are needed, such as Cancer Rates by County, the data request process is less complex. In fact, summary data is publicly available on the NH Health WISDOM Data Portal (https://wisdom.dhhs.nh.gov/wisdom/).

Accessing Environmental Data

Accessing data collected or administered by DES, such as air quality and hazardous waste site data, do not follow the same data request protocols because such data do not qualify as personal health information. Most DES data are publicly available on the DES OneStop Data Portal (https://www.des.nh.gov/onestop/index.htm). As DHHS and DES continue to work on Data and Information as a priority topic, the Data Sharing process will continue to evolve.

Separate from activities driven by SB 85 (2019), DHHS established a Business Intelligence and Analytics program. This program is part of a Department-wide initiative to increase transparency, consistency, and awareness of DHHS services for NH citizens, governing bodies, and funding sources as well as to provide an information rich environment that will guide strategic decisions to improve quality and performance. DHHS is currently organizing to implement a Department-wide Data Governance and Management Strategy to provide guidance on data access, security, maintenance, and dissemination. In addition, the Division of Public Health Services (DPHS) within DHHS is undergoing Operational Strategic Planning and identified Data and Information as a priority topic area. This work will inform future data sharing, data governance, and data stewardship policies and practices.

Summary of Datasets, Databases, and Data Systems

Many datasets, databases, and data systems exist within DES and DHHS that are relevant to environmental health.

Example datasets from DPHS include those from the: Behavioral Risk Factor Surveillance System Survey, Hospital Discharge Data, Cancer Registry, Vital Records (Births and Deaths), Childhood Lead Poisoning, and Youth Risk Behavior Surveillance System. The NH Health WISDOM Data Portal is a Business Intelligence data visualization application that integrates data from multiple sources. The NH Health WISDOM Data Portal is a public web-based clearinghouse of public health data and information touching on core topic areas and presenting over 100 data metrics. Data are available for several topic areas including, but not limited to: Asthma, Biomonitoring, Cancer, Childhood Lead Poisoning, Diabetes, Heart Disease, Oral Health, Injury, and Maternal and Child Health. The Laboratory Information Management System (LIMS) is another example of a data system, however, it is for internal data management and analysis. It allows for electronic laboratory reporting (ELR) for medical providers and also allows for submission of laboratory test results from the Public Health Laboratories (PHL). It includes data related to clinical and environmental laboratory testing done within the PHL (e.g., biomonitoring, radiation health data, well water quality).

Examples from DES include the Environmental Monitoring Database (EMD), which is a database that contains data from observations and laboratory samples for various programs within the Department. The EMD includes two types of data: manually collected samples and automated samples, the difference is that manually collected samples are typically single samples collected in the field (e.g., beach water quality data), whereas an automated sample might be collected on a continuous basis from a data logger (e.g., air quality monitor data). Data are available for several topic areas including, but not limited to: beach water quality, outdoor air quality, public water quality, well water quality, and soil and groundwater quality at hazardous waste sites.

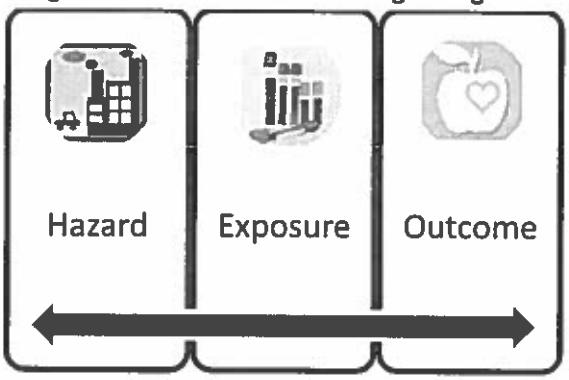
It is important to note that residential private well water quality data resides in both DHHS and DES. Data obtained from the analysis of private well water samples submitted to the Public Health Laboratories (PHL) within DPHS DHHS and paid for by the homeowner are considered confidential unless otherwise specified by signing a waiver, which allows for the summary and release of that information.

Pilot Project: Arsenic and Bladder Cancer

There is a growing interest in using geospatial and epidemiological methods to link environmental exposures and health outcomes. A pilot project on Arsenic and Bladder Cancer was proposed as an opportunity to showcase current data sharing practices between DES and DHHS and highlight current capacity to conduct small area analysis. In reviewing results from this pilot, it is important to consider the limitations of each dataset as well as the limitations of the methods used to link environmental exposure and health outcome data.

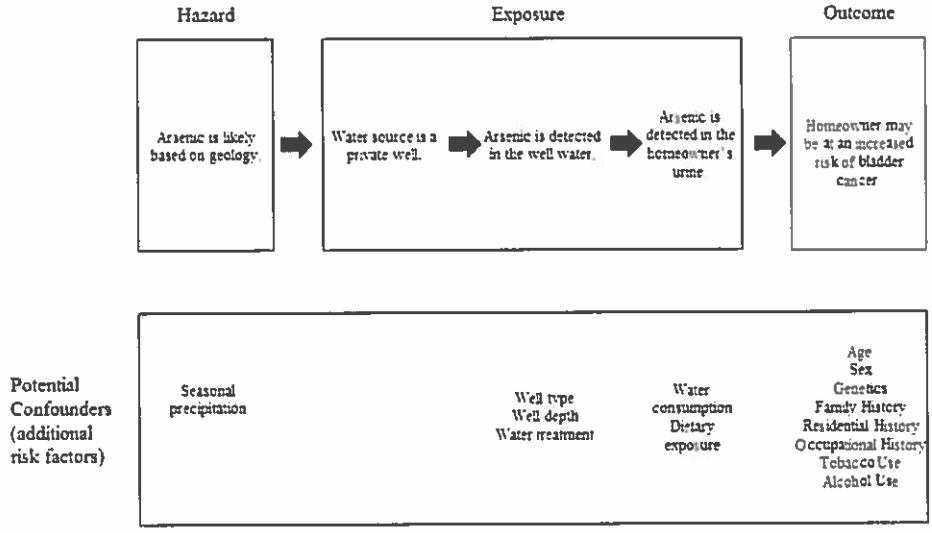
When evaluating potential environmental risks, it is helpful to classify data into three categories (Figure 1). The first is hazard data; this data represents the likelihood or probability that there is a contaminant in the environment. The second is exposure data; this data is a measure of the contaminant in the environment or human body such as the amount of arsenic in well water or the amount of arsenic in human urine. The third is outcome data; this data is related to measurable health outcomes, such as diagnosis of a specific disease.

Figure 1. A Framework for Categorizing Data



It is also helpful to consider the exposure pathways that connect environmental hazards, exposures, and health outcomes (Figure 2). The primary routes of exposure for arsenic are via ingestion and inhalation. This pilot project focuses on exposure via ingestion of contaminated drinking water, however, individual level exposure was not assessed.

Figure 2. Exposure Pathway: Connecting Arsenic in Private Well Water to Human Health



In some cases, such as with arsenic and bladder cancer, there is an established association supported by scientific evidence. In other cases, the scientific evidence may be lacking so the link is less clear, or may not exist. In addition, correlation does not equal causation. This type of study where exposure data is not available at the individual level only allows for general associations to be made. Specific study designs, such as a Cohort Study or Case-Control Study, which were not utilized in this pilot, must be used to evaluate the specific relationship between Hazards, Exposures, and Outcomes. While linking data or overlaying data is useful to explore patterns and to generate questions, more sophisticated methods must be used to draw specific conclusions about cause and effect. The Centers for Disease Control and Prevention (CDC) define 10 Essential Public Health Services that outline core functions of the public health system. Several are relevant to this type of work including: monitoring health status to identify and solve community health problems, diagnosing and investigating health problems and health hazards in the community, and conducting research to gather new insights and develop innovative solutions to health problems. However, it is important to note that DES and DHHS rely on partners such as those from academia and the federal government to conduct more complex environmental epidemiological analysis.

Arsenic exists naturally in certain granitic and metamorphic bedrock formations in NH. Nearly 50% of NH residents rely on private wells as a drinking water source. Many of these wells are drilled deep into bedrock to access groundwater. Since arsenic exists in the bedrock in many places, it can be present in the groundwater, often at unsafe levels. The maximum contaminant level (MCL) set by the Environmental Protection Agency (EPA) for arsenic in drinking water is 10 ug/L (or 10 ppb). In 2019, the New Hampshire Legislature enacted HB 261, which directs NH DES to adopt an MCL no greater than 5 ug/L (or 5ppb). Groundwater may also contain arsenic from human activities, including but not limited to agricultural runoff, contamination from wood preservatives containing arsenic, improperly disposed arsenic containing materials, or mining.

Data Sources

Arsenic Probability (United States Geological Survey, 2012)

These data come from the United State Geological Survey (USGS). The USGS Report, *Estimated Probability of Arsenic in Groundwater from Bedrock Aquifers in New Hampshire, 2011* summarizes the probability of arsenic occurrence in groundwater at concentrations equal to or exceeding 10, 5, and 1 micrograms per liter (Ayotte et al. 2012).

This probability estimate can be used as a predictive tool to help identify potential areas at risk, however, it does not definitively identify areas of exposure. It does not mean that if you are in a high-risk area that you *will* have arsenic in your well water, nor does it mean definitively that if you are in a low-risk area that you *will not* have arsenic in your well water. However, the USGS data does indicate as the shading changes from white, to pink, to red, that the probability (or likelihood) of having arsenic in your groundwater at a concentration of 10, 5, or 1 ug/L goes up. If you live in one of these areas and have a private well, you may be at an increased risk of having arsenic present in your well water. Wells must be tested to determine Arsenic level. However, if you live in one of these areas and are on a Public Water Supply, then you are at a reduced risk because Public Water Systems monitored by DES must adhere to State and Federal drinking water standards.

Private Well Water Quality Data

(NH Public Health Laboratory and NH Department of Environmental Services, 2014-2018)

These data come from the Water Analysis Lab within the Public Health Laboratory at DPHS DHHS as well as data shared with the MtBE Remediation Bureau within NH DES by homeowners electing to pay for additional analyses while having their wells sampled for MtBE. These data represent all samples collected from 2014 to 2018.

Not all private well water samples in the state are analyzed at the Public Health Lab. There are several private labs that conduct water testing within the State and in neighboring States. Results from these private labs are not publicly accessible nor reported to PHL and therefore are not included in this analysis. Many factors can influence whether or not well water is contaminated with arsenic. Some important factors to consider include: well design and well depth. It is also important to keep in mind that the water quality test may be done on raw water collected before treatment or finished water collected after treatment, and it is important to know the difference since people should only be drinking water post-treatment. Since many factors can influence well water quality, the public health message is to test private wells for arsenic every 1-3 years. Furthermore, it is not safe to assume that well water quality in one location will be the same as nearby locations.

Bladder Cancer Data (NH Cancer Registry, 2006-2015)

Cancer data are collected by the NH State Cancer Registry (NHSCR). The Cancer Registry is operated through a contract with Dartmouth College, with oversight from DPHS DHHS. The NHSCR is a population-based cancer surveillance program that collects incidence data on all cancers diagnosed or treated in the State of New Hampshire. In addition, the NHSCR collects incidence data for NH residents who are treated in certain out-of-state facilities. For every diagnosed case of cancer, the registry collects

detailed information about the diagnosed case, including the date of diagnosis, type of cancer, stage at diagnosis, and patient demographic information including residence at the time of diagnosis, age, race, and gender.

While there is great utility in registry data, it has certain limitations. There is often the desire to use registry data to signal or identify potential cancer-related exposures in a geographic area. Lack of information on residential history in the registry presents a challenge in assessing exposure in a specific region. The registry captures only the residence at the time of diagnosis. Because populations are mobile, this means that a case attributed to a specific geography based on the residence at time of diagnosis does not necessarily indicate lifetime or even recent exposure in the same area.

Data Analysis and Summary of Results

Part I – Hazard Data – Arsenic Probability

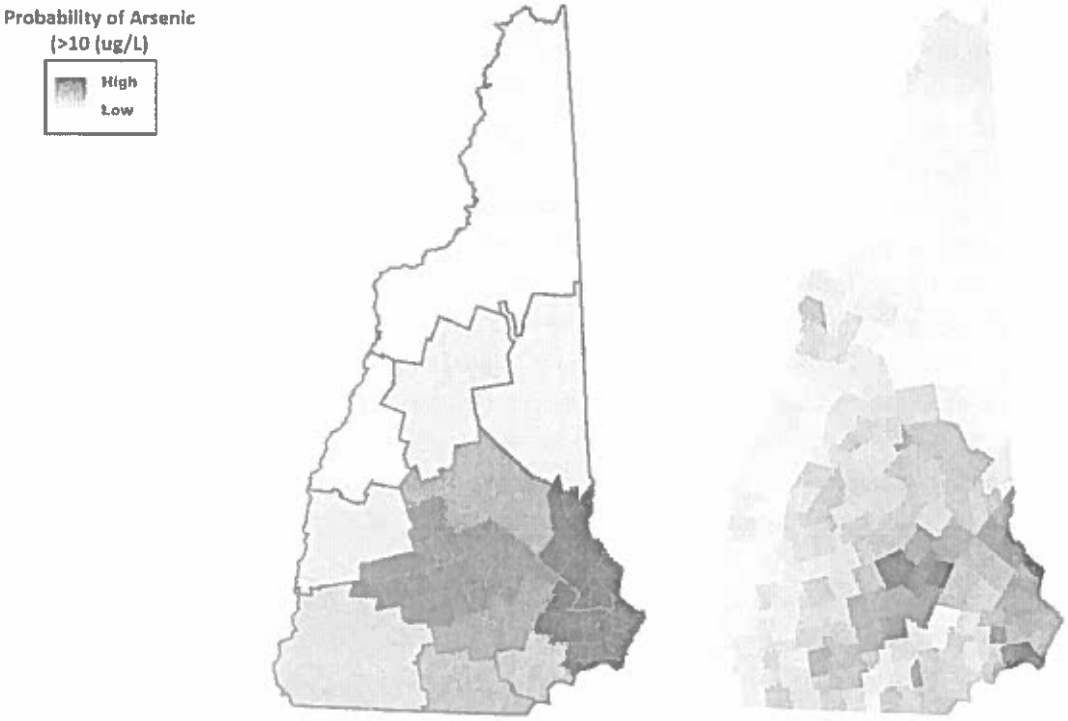
This section presents data on arsenic probability, the likelihood that the arsenic concentration in groundwater is greater than or equal to 10 ug/L based on the USGS Probability Map (Figure 3). The map shows data as a continuous layer across the entire state. Probability of arsenic increases as the color changes from white to pink to red. This map indicates that the probability of arsenic in groundwater (≥10 ug/L) is highest in the south and southeast regions of the State, however, there are pockets of high risk scattered across the State.

Since the goal of this pilot is to link hazard data to exposure or outcome data, it can be helpful to summarize the raster (or gridded) data by a certain geography. Arsenic probability data are summarized by Public Health Region and by town (Figure 4).

The borders in this case follow Public Health Regions and towns, however, the borders are arbitrary when dealing with an environmental contaminant. Averaging over an area like this can sometimes be misleading as it can "wash out" or "mask" extreme high or low values. Specifically, for individuals living on a border the average value might be misleading. In comparing the region map to the town map it is clear that results will vary based on the geographic boundary of interest, and this can have serious implications for the conclusions. For example, in the Northwest corner of Grafton County, near Haverhill and Bath, the increased probability shown on the original map gets "washed out" when the data are summarized by Region, but is maintained when the data are summarized by Town. One possible solution is to move away from summarizing data over specific geographic areas, and instead analyze data over a continuous gridded surface using other spatial analysis methods such as cluster analysis or heat map analysis. There are always tradeoffs. In some cases, this type of gridded data may be more difficult for local decision makers to interpret since it may cross municipal boundaries. Though more scientifically accurate, these methods may make the results less locally relevant. Future work will need to evaluate different methods to address various community concerns. It is important to note that any method used will need to uphold data suppression and data release guidance to protect privacy.

Figure 3. Estimated Probability of Arsenic in Groundwater (≥10 ug/L) (USGS, 2012)

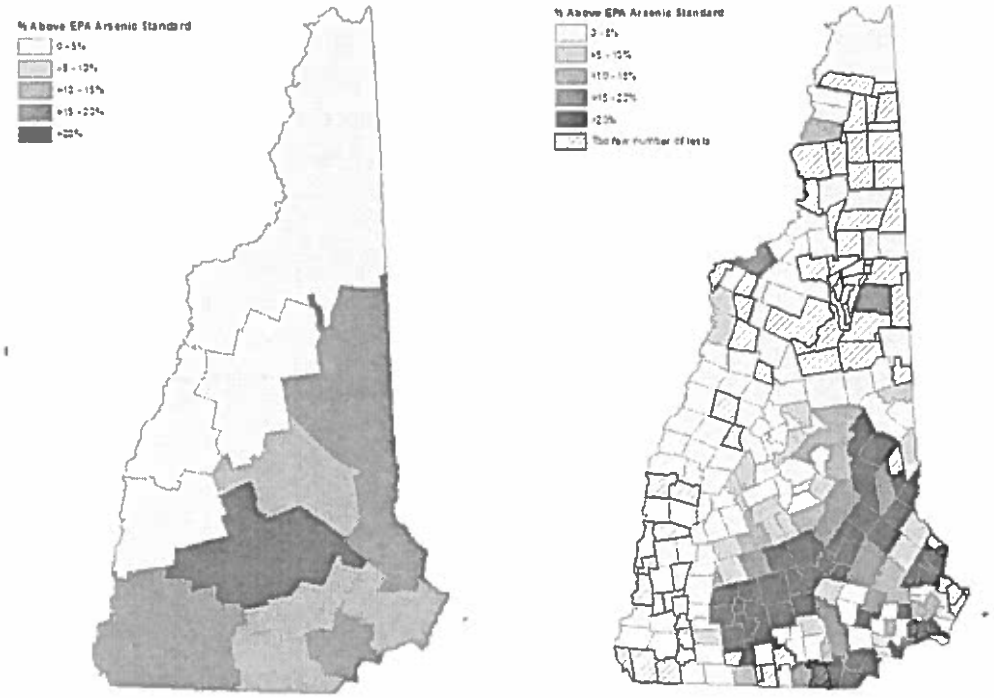
Figure 4. Estimated Probability of Arsenic in Groundwater (≥10 ug/L) by Public Health Region Compared to by Town (USGS, 2012)



Part II – Exposure Data – Private Well Water Quality

This section presents data on well water quality by Public Health Region and by Town. Recall that the EPA Arsenic Standard is 10 ug/L (or 10 ppb). The maps show the percent of well water tests that are above (exceed) the EPA Standard (Figure 5). These maps do not convey the proportion of residents served by private or public drinking water systems, nor does the data reflect whether a treatment system is installed in the home or whether the sample was collected pre- or post-treatment. Comparing the Region map to the Town map, it is clear that some high and low values are "washed out" or "masked" when rolled up to the region. It is extremely important to choose geographic boundaries carefully when doing this type of analysis, as it can influence the results and conclusions.

Figure 5. Well Water Quality Data by Public Health Region Compared to by Town (NH Public Health Laboratory, 2014-2018)



Part III – Health Outcome Data –Bladder Cancer

This section presents three maps of age-adjusted bladder cancer rates per 10,000 people. According to the National Cancer Institute, an estimated 40% of people across the US will develop cancer during their lifetime. Recognizing that age is a major risk factor for cancer, rates are age-adjusted to allow for comparison of rates across geographic regions since the age distribution of the population may vary. The first map depicts data for 2015 (a 1-year period) by Public Health Region (Figure 6). The second map depicts data for 2006-2015 (a 10-year period) comparing Public Health Regions to Sub-County Regions (Figure 7). The Sub-County Regions break the State up into approximately 50 distinct areas.

One takeaway is that these rates are different when comparing 1-year rates to 10-year rates. It is important to note that the confidence intervals (or uncertainty around the estimates) is much greater for the 1-year estimate compared to the 10-year estimate. Another important takeaway is that these rates vary across Public Health Regions in the State. For this reason, it can be valuable to divide the state up into smaller geographic areas. However, when we do this we must also uphold data suppression and data release guidance to protect privacy. One way to accomplish this is to group multiple years of data or combine geographic areas to ensure data reliability and maintain confidentiality. The general rule is that counts, or rates, where there are between 1 and 5 cases must be suppressed for any geography or age/sex sub-category. In this case, based on the number of bladder cancer cases it was necessary to group 10 years of data together in order to present rates at the Sub-County Region scale.

Figure 6. Age-Adjusted Bladder Cancer Rates (per 10,000) by Public Health Region (NH Cancer Registry, 2015)

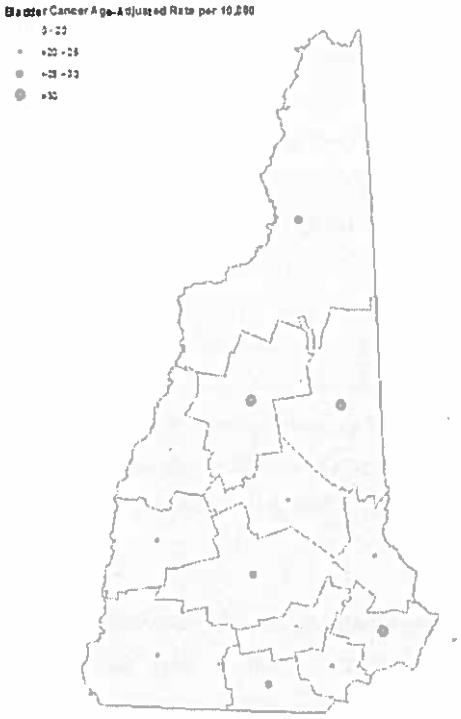
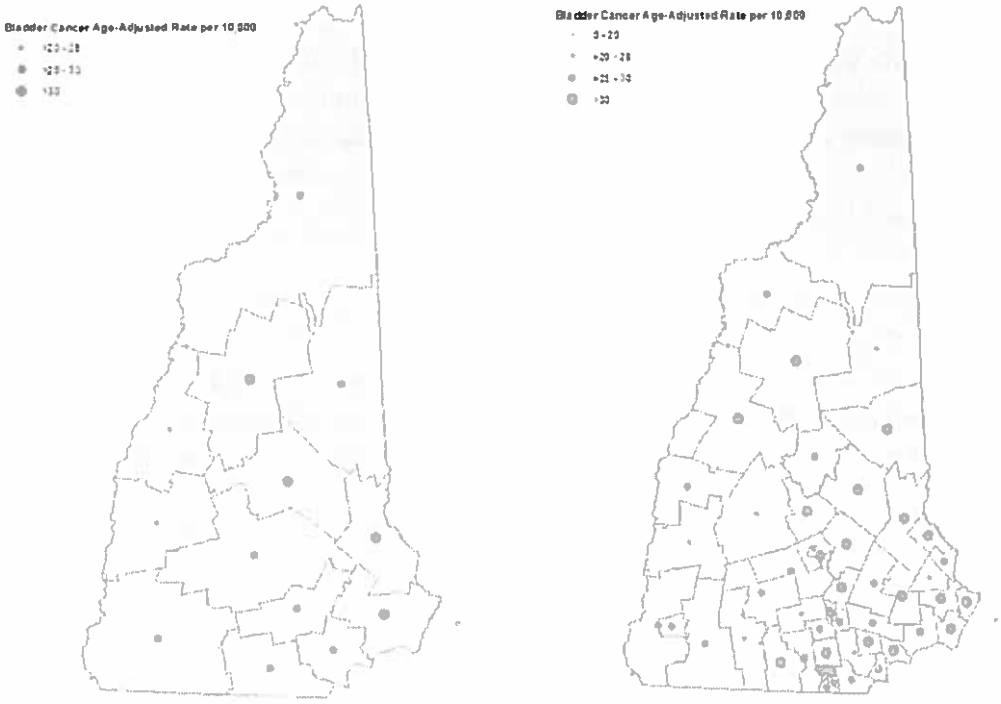


Figure 7. Age-Adjusted Bladder Cancer Rates (per 10,000) by Public Health Region and by Sub-County Region (NH Cancer Registry, 2006-2015)



Summary of Findings

This Arsenic and Bladder Cancer Pilot was a valuable exercise in that it helped DES and DHHS understand current capacity and identify priorities for future work including:

- Identify data sources that are available to support this type of investigation;
- Identify additional data sources that could be incorporated into future analyses if made available in an electronically stored format;
- Identify strategies to improve data sharing across programs and agencies;
- Understand that data from multiple sources can be summarized and compared, but due to limitations of the data and methods, it is challenging to draw definitive conclusions about cause and effect;
- Highlight the tradeoffs of small geographic area analysis, in most cases several years of data will need to be combined in order to maintain reliability and protect confidentiality;
- Refocus efforts on using data to drive action and to prioritize activities in a limited resource environment such as targeted outreach and education in high-risk areas; and
- Develop standard methods for summarizing environmental exposures and relevant health outcomes.

Key Messages to Reduce Exposure from Groundwater Contaminants:

Unhealthy levels of contaminants are common in many private wells in New Hampshire. Most have no taste, smell, or color. It is important to periodically test well water quality to ensure it is safe to drink.

The following key messages are aligned with ongoing initiatives at DES and DHHS:

- When to Test?
  The recommendation is to conduct the standard and radiological analysis every 3-5 years. Bacteria and nitrate should be tested every year. Certain conditions call for more frequent testing, such as: heavy development associated with hazardous chemicals, recent well construction or repairs, previous elevated tests, noticeable changes in taste, smell or appearance. Future testing recommendations will address volatile organic compounds (VOCs) and per- and polyfluoroalkyl substances (PFAS).
- How to Test?
  Order a test kit from an accredited laboratory.
- How to Treat?
  If the lab report indicates there is a contaminant above recommended action levels, steps should be taken to fix it. The NHDES Be Well Informed web tool summarizes possible treatment options for common contaminants. A water treatment professional should be consulted.

Current Collaborations

Cancer is not a single disease, but instead a group of over one hundred diseases, each with different presentations and risk factors. While there are some inherent risk factors that cannot be modified, including age, race, gender, and genetics; modifiable risk factors such as those relating to lifestyle or the environment can be addressed to reduce the burden of disease. According to the CDC, the most important risk factor for bladder cancer is smoking. Within NH DHHS, the New Hampshire Tobacco Prevention and Cessation Program (TPCP) is dedicated to the implementation of a comprehensive program designed to reduce the prevalence of tobacco use in New Hampshire. The TPCP's primary goals are to prevent NH youth from beginning to use tobacco; to eliminate exposure to secondhand smoke; to promote quitting tobacco among users; and to prioritize efforts to reach those most affected by tobacco. Another modifiable risk factor for bladder cancer is exposure to arsenic through drinking water and diet. Several programs across DES and DHHS, in partnership with Dartmouth and other stakeholders, are working to implement strategies to reduce exposure to arsenic among NH residents. The following are examples of collaborative work focused on better understanding and reducing exposure:

NH Arsenic Consortium:

The primary mission of the NH Arsenic Consortium is to help the public, primarily private well users, become aware of (1) the presence and health implications of arsenic in the food and water supply, (2) the importance of testing private wells for arsenic and other common contaminants and (3) how to take the appropriate next steps to reduce their exposure to arsenic from their food and water supply. Composed of academic and agency experts, and representatives from health and environmental agencies, non-profit organizations and local municipalities, the Consortium seeks to provide the latest information to its members and the public, coordinate outreach and other intervention efforts, and prioritize tasks to have the greatest possible impact on reducing exposure to arsenic in food and drinking water and ultimately improving public health.

The 6th NH Arsenic Consortium meeting was held on March 22, 2019 at the headquarters of NH Department of Environmental Services and NH Department of Health and Human Services in Concord. Along with hearing research, outreach, and legislative updates, about 70 stakeholders from the water industry, local, state and federal government, research and education and private well owners collaborated to develop a draft "Road Map to Reduce Arsenic Exposure in NH." Still in development, the Road Map will offer routes for reducing exposure by sector, including routes specific to private well owners, government representatives, health professionals, and environmental professionals.

Distribution of Filter Pitchers to Vulnerable Populations:

DES, in cooperation with DHHS and the state's network of Women, Infant, and Children (WIC) clinics, secured funding from the NH Drinking Water and Groundwater Trust fund to contract for and implement a 5-year project which will provide filter pitchers to an estimated 524 low-income pregnant women using private wells with elevated arsenic, and to provide follow-up support to program participants. The project is designed to (1) establish a sustained practice among those families of using filter pitchers and replacing filter cartridges as needed, (2) generate valuable information regarding the

effectiveness of this approach to reducing exposure to contaminated drinking water and (3) reinforce a public information initiative regarding the use of certain verified filter pitchers as an affordable means of treating drinking water from private wells, particularly for pregnant women. In addition, the project will seek to educate participants about the importance of continued well water testing. A Request for Proposals was released, and applications were received in early September 2019. Project implementation will begin as soon as partners are in place.

Well Testing Community Events:
DES, DHHS, and Dartmouth Toxic Metals Superfund Research Program partner to host community well testing events to provide education about testing and to make it easier for well users to get their water tested. Although outreach to communities is based on probability of elevated arsenic, prevalence of private wells, and socioeconomic factors that may serve as a barrier to testing, participating communities are ultimately self-selected. Twenty-two communities have hosted the workshops since 2016, some more than once.

Targeted Arsenic and Uranium Public Health Study:
The Targeted Arsenic and Uranium study was conducted by BiomonitoringNH to look at how much arsenic and uranium is found in private wells in NH and whether these two chemicals are getting into the body. This is a targeted public health study that was specific to areas of higher exposure to arsenic and uranium. Based on the 2012 USGS Report, NH towns with an increased probability of having arsenic above the Environmental Protection Agency (EPA) maximum contaminant level (MCL) of 10 ug/L (or 10 ppb) in the groundwater were selected to recruit participants. A small comparison population on municipal (or "public") water from Concord was also involved. Invitation postcards and letters were mailed to several hundred randomly selected households in each town. Enrollment was open to all qualified residents. Qualified people were 5 years or older, lived in a selected town, and used a private well for their home (except for the comparison population). Participants spent about two hours over the course of a couple of days to (1) attend a meeting to answer survey questions and get their collection kit (2) keep a basic food log, and (3) collect a urine sample and two water samples from their home. The survey included questions about their demographics, occupational history, recreational activities, food and beverage consumption, and health. In return, participants received free arsenic and uranium testing of their urine and free water quality testing. All testing was performed by the State of New Hampshire Public Health Laboratories. A summary of results is available on the WISDOM Data Portal (https://wisdom.dhhs.nh.gov/wisdom/).

New Hampshire Tracking and Assessment of Chemical Exposures (TrACE) Study:
The 2019 NH Tracking and Assessment of Chemical Exposures (TrACE) Study is a statewide public health surveillance study looking at many different metals, pesticides, per- and polyfluoroalkyl substances (PFAS), and other chemicals such as tobacco smoke in NH residents. These are chemicals that individuals may come into contact with from the environment. The TrACE Study will evaluate whether these chemicals are getting into the human body. BiomonitoringNH will do this by testing blood and urine from 400 NH residents (6 years and older) as well as by testing the water from their homes. BiomonitoringNH is working with the NH Department of Environmental Services (NHDES) and the NH

Environmental Public Health Tracking Program to collect and test household water. This type of statewide surveillance study ensures that comprehensive data are collected for: (1) residential history, (2) exposure history, (3) environmental data, and (4) clinical data that allows for more in-depth analysis of potential associations.

Comprehensive Cancer Control Program (CCCP):
The CCCP is focused on promoting the use of cancer surveillance data to develop and implement the New Hampshire Comprehensive Control Plan through partnerships (https://www.nhcancerplan.org/index.php/workgroups/93-task-forces/221-goals-objectives-strategies). The current plan includes objectives around arsenic, tobacco use, bladder cancer, ensuring access to high quality cancer care including clinical trials, and improving the quality of life for cancer survivors. According to the National Cancer Institute, the general 10-year survival rate for people with bladder cancer is 65%. These bladder cancer survivors will need routine medical care dependent on the stage and grade of their cancer and can benefit from their provider developing a survivorship care plan. The CCCP is working in partnership with the Norris Cotton Cancer Center on improving our statewide data on cancer survivor needs, developing better systems of care for those navigating the treatment process, improving the survivorship care planning process, and increasing access to cancer survivor community programs and resources.

Recommendations
We look forward to continuing to engage in this work as we further refine our data sharing practices and find innovative ways to use data in order to drive decision making, while also recognizing the limitations of the data and resources available to support this work. In collaboration with the Commission, we will explore further opportunities to improve data sharing and analysis of environmental exposure and health outcome data.

Appendices
Memorandum of Agreement (specific to data sharing between DES and DHHS)
HB1356 Preliminary Report (August 2018)

References Used in this Report
USGS Report: Estimated Probability of Arsenic in Groundwater from Bedrock Aquifers in New Hampshire, 2011 (https://pubs.usgs.gov/sir/2012/5156/pdf/sir2012-5156_ayotte_508.pdf)
CDC 10 Essential Services of Public Health (https://www.cdc.gov/publichealthgateway/publichealthservices/essentialhealthservices.html)
National Cancer Institute: Cancer Stat Facts (https://seer.cancer.gov/statfacts/html/all.html)
Center for Disease Control and Prevention: Bladder Cancer (https://www.cdc.gov/cancer/bladder/index.htm)

MEMORANDUM OF AGREEMENT
between the
DEPARTMENT OF HEALTH AND HUMAN SERVICES/DIVISION OF PUBLIC HEALTH SERVICES
and the
DEPARTMENT OF ENVIRONMENTAL SERVICES

This Memorandum of Agreement (MOA) describes the environmental health data sharing activities that have been agreed to between the Department of Health and Human Services, Division of Public Health Services (DHHS/DPHS), and the Department of Environmental Services (DES). The goal of the MOA is to build on existing state capacity and expertise in environmental health surveillance to make information-driven decisions to protect public health. Through this MOA, DHHS/DPHS and DES are able to consistently design, implement, and evaluate environmental public health actions which are supported by environmental health data and information which are scientifically valid, useful, and meaningful.

This MOA covers the period July 1, 2018, through June 30, 2022. The MOA contains the option to renew for an undetermined period of time based on agreement of the parties. This MOA replaces any other agreements that have established between DHHS/DPHS and DES for a specific program.

For the purposes of this MOA, DHHS/DPHS and DES agree to cooperate as follows:

I. Department of Health and Human Services/Division of Public Health Services

The Department of Health and Human Services/Division of Public Health Services agrees to:

1. Assist DES with project planning and implementation when appropriate.
2. Assist DES staff with access to aggregated public health data via the NH Health WISDOM Data Portal.
3. Assist DES staff with access to data within the DHHS Enterprise Data Warehouse.
4. Share technical expertise on data interpretation.

II. Department of Environmental Services

The Department of Environmental Services, agrees to:

1. Assist DHHS/DPHS with project planning and implementation when appropriate.
2. Assist DHHS/DPHS staff with access to environmental monitoring data via DES OneStop and explore opportunities for direct access to database systems as deemed appropriate by DES staff.
3. Abide by the confidentiality rules defined by DHHS/DPHS to protect the identity of all personal information within health records as outlined in 'Guidelines for Public Release of Public Health Data'. http://www.dhhs.nh.gov/dphs/hsdm/documents/publichealthdata.pdf
4. Share technical expertise on data interpretation.

III. Mutual Agreements of the Parties

It is further understood and agreed between DPHS and DES:

1. The parties will maintain communication via regular meetings between program staff to ensure collaboration on work that is being conducted.
2. The parties agree to facilitate the exchange of information and appropriate data sets to support work in the field of Environmental Health.
3. That this MOA may be modified in writing at any time by mutual consent of both parties.
4. In the event that changes in either State or Federal laws or regulations occur which render the performance of the activities set forth in this MOA illegal, void, impractical or impossible, this MOA shall terminate immediately.
5. The parties will review this MOA at least once each year to determine whether it should be revised, renewed, or terminated.

IN WITNESS WHEREOF, the respective parties have hereunto set their hands on the dates indicated.

Jeffrey A. Meyers
Commissioner
Department of Health and Human Services

Robert R. Scott
Commissioner
Department of Environmental Services

Jeffrey A. Meyers
Commissioner

Lisa M. Morris
Director

STATE OF NEW HAMPSHIRE

DEPARTMENT OF HEALTH AND HUMAN SERVICES

DIVISION OF PUBLIC HEALTH SERVICES

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www.dhhs.nh.gov

August 31, 2018

Honorable Representative Mark Pearson, Chairman
Commission to Study Environmentally-triggered Chronic Illness
Legislative Office Building/Room 205
Concord, NH 03301

Re: HB 1356 (RSA 126-A:76, III, Chapter 296:1, Laws of 2018)
Report on Data Sharing between the New Hampshire Departments of Health and Human Services and Environmental Services.

Dear Chairman Pearson:

As required by HB 1356 (RSA 126-A:76, III, Chapter 296:1, Laws of 2018), please find the attached preliminary report on data sharing practices between the Departments of Health and Human Services and Environmental Services. The following documents are enclosed:

- HB 1356-Final Version
- Preliminary Report
- Appendix C-Inventory Arsenic Data
- Memorandum of Agreement

A presentation of the report to your Commission to Study Environmentally-Triggered Chronic Illness will be held at the next regular meeting scheduled for September 28, 2018. Please let me know if you have any questions by contacting me.

Respectfully submitted,

Lisa Morris
Director

ENCLOSURES

CC: House Speaker Gene Chandler
Senate President Chuck Morse
Honorable Michael York, New Hampshire State Librarian

MEMORANDUM OF AGREEMENT
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5. The parties will review this MOA at least once each year to determine whether it should be revised, renewed, or terminated.

IN WITNESS WHEREOF, the respective parties have hereunto set their hands on the dates indicated.

Jeffrey A. Meyers
Commissioner
Department of Health and Human Services

Robert R. Scott
Commissioner
Department of Environmental Services

Preliminary HB 1356 Legislative Report

New Hampshire Department of Health and Human Services/Division of Public Health Services and New Hampshire Department of Environmental Services

August 30, 2018

Table of Content

Introduction

The following is a preliminary report on deliverables related to House Bill (HB)1356, which directs the Department of Environmental Services (DES) and the Department of Health and Human Services (DHHS) to improve the data sharing and usability of health and environmental data.

Data are an important tool that can help build common understanding, allow for more informed decision making, and improve efficiency and effectiveness. This preliminary report includes background information on communication and engagement processes across DES and DHHS, a memorandum of agreement, an update on standard operating protocol, and arsenic-related data assets. The next report will include final standard operating protocols, description of a pilot project, and cost estimates of the pilot.

Background

HB1356 charged the DES and DHHS to establish a data sharing protocol for health and environmental information collected by each agency. Under HB 1356 (attached as Appendix A), DES and DHHS were asked to provide a report on or before September 1, 2018 to the Speaker of the House of Representatives, the Senate President, the State Library, and the commission to study environmentally-triggered chronic illness to include the following items:

a. An updated memorandum of agreement (MOA) regarding data sharing between the DES and DHHS.
b. A standard operating procedure on how data can be shared between the two departments to identify linkages between environmental contaminants and health outcomes.
c. A description and estimate of the cost to perform a two-way pilot project on arsenic in drinking water, a contaminant where both health effects and environmental data exist.

This preliminary report reflects on an approach that is intended to foster the relationship and build the investment necessary to accomplish this task within both agencies and among stakeholders in order to assure that HB1356 and the larger data-sharing vision will be sustainable over time. Multiple interagency meetings have taken place in order to respond to the requests as outlined by the bill. This process ensured that careful consideration was given to the resources across both agencies while also considering the feasibility and public health importance of the environmental issues at hand.

Memorandum of Agreement

The mission of DHHS is to join communities and families in providing opportunities for citizens to achieve health and independence. Promoting and protecting health and preventing disease are key functions of DHHS through the work of the Division of Public Health Services (DPHS).

The mission of DES is to help sustain a high quality of life for all citizens by protecting and restoring the environment and public health in New Hampshire. The preservation and wise management of New

Hampshire's environment are the important goals of the DES.

Environmental health and welfare for all citizens of the state are responsibilities shared by DHHS and DES. These organizations have a long history of working together to address environmental health concerns, and have focused on the accountability of public agencies, quality and efficiency in addressing the needs of citizens, improving health outcomes, and consistency in messaging. In recent years, DES and DHHS officials have faced community concerns over higher-than-expected rates of cancer and chronic diseases and existing and emerging environmental issues. To proactively address these ongoing concerns, DHHS and DES have worked to update the existing MOA to be more inclusive of DES and DHHS programs. This will allow the agencies to collect health data and information that are scientifically valid, useful, and meaningful and, as a result, will improve consistency of design, implementation, and evaluation of environmental public health actions which are supported by environmental data.

The MOA directly aligns with the primary goals of DES and DHHS which are to protect, maintain, and improve the health of all New Hampshire citizens. Moreover, it integrates data and expertise from DES and DHHS into public health practice. The updated MOA is attached under Appendix B.

Standard Operating Procedure

An interagency team of technical staff are working to establish the standard operating procedure (SOP) for data sharing. The workgroup has been making advancements towards identifying and establishing the purpose, key principles, responsibilities, staff leads, and the processes and procedures necessary for data sharing. This process will ensure that careful consideration is given to the existing data sources, legislation, and rules surrounding privacy protections.

The process to finalize the SOP has been delayed due vacancies/absence of key staff including bureau chiefs for the Bureau of Public Health Protection and Bureau of Public Health Statistics and Informatics. Once finalized, the interagency team will provide regular updates and a final standard operating procedure on data sharing across agencies.

Pilot Project

In recent years, DHHS and DES staff have faced community concerns over higher-than-expected rates of cancer and chronic diseases as well as other emerging and existing environmentally-related concerns. Approximately 450 substances are known or reasonably anticipated to be carcinogenic, but there are substantial practical challenges in attributing individual cancers or chronic diseases to specific chemical exposures. The existing public health data or environmental data sources and conventional statistical approaches can be labor-intensive and may not be sufficient at determining whether an increase in a health outcome (including cancer or chronic disease) are real or due to random variation. These data sets don't provide conclusive answers about causes of disease. Whether an individual develops a disease or condition depends on the type, dose, and timing of the environmental exposure, whether they have also been exposed to other toxic compounds (such as radon or tobacco), and many personal factors such as genetics, nutrition status, and overall health.

The situation in New Hampshire reflects the current state nationally and illustrates a clear need for new methods to assess and investigate cancer and chronic disease links to environmental contaminants including arsenic. To address the common underlying concern that environmental pollutants may be causing cancer or chronic diseases and to fulfill the deliverable under HB1356, DES and DHHS are proposing a pilot project between the departments on arsenic in drinking water.

The interagency team and academic researchers from Dartmouth Toxic Metals Superfund Research Program developed a pilot project between the departments on arsenic in drinking water. The team proposed evaluating current collaborations across the agencies, current data assets, limitations relating to linking health and environmental data, and the scientific feasibility and public health importance of the proposed pilot to assure resources are used wisely. At this point in time, due to absence of key staff, the interagency team could not complete the work on the pilot proposal. A subsequent report is forthcoming that will include details of the pilot.

Current Collaborations

DHHS and DES have had various collaborations over the years around addressing public health concerns. The following highlights two projects in particular. The New Hampshire Public Health Laboratories (PHL), NH Biomonitoring Program (located within DHHS) has received a five year cooperative agreement from the Centers for Disease Control and Prevention to conduct two biomonitoring studies: 1) a targeted study assessing arsenic and uranium exposure from private well water and 2) a statewide surveillance study assessing exposure to a panel of metals (including arsenic and arsenic species), pesticide metabolites, per- and polyfluoroalkyl substances (PFAS), and cotinine (a nicotine metabolite). The Biomonitoring Program is about to enter Year 5, the final year of the agreement. Both projects are leveraging interdepartmental relationships and resources. The following will describe one of these efforts.

Collaboration Example: The Targeted Arsenic and Uranium Public Health Study

The Targeted Study aims to assess the relationship between arsenic and uranium in private well water and body burden by testing both household drinking (well) water and individuals' urine for those metals. The PHL worked with the Environmental Public Health Tracking (EPHT) Program to identify twenty-five (25) towns at increased risk for having arsenic above the Environmental Protection Agency's (EPA's) maximum contaminant level (MCL) in their groundwater. Modeling produced by the US Geological Survey was utilized and each data point (within a town) was given an estimate of arsenic risk. The town estimates were averaged and towns in southern and southeastern NH that had an estimated risk of arsenic above the MCL of $\geq$35% were selected for this study.

NH PHL staff worked with DES to use the OneStop Well Database for well location identification. DES has a memorandum of understanding (MOU) with the NH Department of Revenue Administration for tax parcel data. The MOU allows for sharing of tax data with NH DES which includes owner name, tax number, property information, and address. This is the most accurate way for DES to find ownership of

the well/property from OneStop information. NH DES was able to share de-identified well, line, and public parcel data with the NH Biomonitoring Program to identify well locations within the targeted towns.

The NH Biomonitoring Program worked to overlay the MOSAIC tax data with the GPS coordinates from OneStop. Wells in public water systems were removed from the study, as public water systems must treat their water to meet the EPA MCLs for all contaminants, including arsenic and uranium. Parcels that contained no wells or more than one well were also removed, as well as parcels without complete address information. The remaining addresses were run through the NH Department of Safety's E9-1-1 address locator to verify accuracy and correct any obvious errors. What remained was an inventory of property addresses with a well registered in OneStop.

These addresses were randomized and some households were selected for invitation into the study. The households were mailed recruitment postcards and letters. Those interested contacted the Biomonitoring Program and people who were at least 5 years old were enrolled, and an in-person meeting was scheduled. Informed consent/assent was given at the meeting followed by administration of the exposure survey. This survey collected demographic, occupational, and recreational information as well as a limited health history (self-reported) and food intake assessment. Participants then self-collected urine and water at their homes on a pre-determined date. Water and urine samples were packaged into a cooler, picked up by a contracted courier, and delivered to the NH PHL for testing by the Water Analysis Laboratory and the Biomonitoring Laboratory. As previously mentioned, water was tested for arsenic, uranium, and VOCs. As part of the incentive for participation in this study, water was also tested for cadmium, iron, manganese, copper (stagnant/flushed), lead (stagnant/flushed), hardness, and pH. The Biomonitoring Program also worked with the NH DES Methyl-tertiary-butyl-ether Remediation Bureau to coordinate free volatile organic compound (VOC) testing of private well water for participants who consented to this process. Water reports were mailed to the participants upon testing completion and, urine reports will be mailed at the conclusion of the study (this study is ongoing).

Throughout this process, the NH Biomonitoring Program has consulted with the Biomonitoring Technical Advisory Committee (TAC) for feedback on study design and methods. The TAC consists of members of academia, the DES Drinking Water & Ground Water Bureau, the Dartmouth Toxic Metals Superfund Research Program, the New England Poison Control Center, DHHS epidemiologists/statisticians, local town administration, health departments, and hospitals. Data collected from this study will be shared on EPHT's WISDOM health data portal as well as with members of the NH Arsenic Consortium, of which DES and DHHS work very closely together.

The NH Biomonitoring Program hopes to secure future funding from the CDC to continue this testing, as well as receive State funding to augment the program. Continuation of this program is critical for assuring the public's health in NH. First, the Biomonitoring Program hopes to evaluate how NH

addresses the environmental contaminants that were tested in the current project and to determine whether the programs in place are successful in reducing levels of these chemicals in NH residents. Second, the Biomonitoring Program is working closely with the DES to determine what new contaminants of concern are emerging and then incorporating them into the NH Public Health Laboratories' test panel. The Biomonitoring Program will reapply for federal funding through a competitive process in 2019. This competitive application is strengthened if the applying state has State funding available to enhance or expand the Biomonitoring Program.

The interagency team has presented The Targeted Arsenic and Uranium Public Health Study as one example of collaboration across agencies to collect public health data related to environmental exposures.

Arsenic Related Data: Assets and Limitations

There are numerous data sets which include measures relevant to the topic of arsenic and associated health outcomes. While many of the data sets are owned or stewarded by the DES and DHHS, some data sets belong to other agencies or organizations or are not maintained in one central location (e.g. private well water test results which are housed by DHHS and many private businesses). As organized in Appendix C, the identified arsenic-related data sets can be divided into three categories: health outcome data for conditions associated with arsenic exposure or potential exposure data, and behavioral data such as water testing, treatment, and consumption.

Appendix C provides detail about each of the identified data sets, including relevant data and indicators, the data steward, the available years and geographic granularity, and limitations and, additional notes for context. In addition to the limitations noted for the individual data sets, there are overarching limitations such as the fact that data is presented in different formats with limited or no ability to make linkages or, that the data sets are not centralized. Additionally, the inclusion of protected and identifiable health information within certain data sets restricts the sharing of data at the record level.

While a memorandum of agreement can facilitate collaboration and data sharing, in particular among State agencies, the State is limited in its regulatory authority to compel certain organizations such as private labs to share data. This poses a significant limitation on the ability to receive water test results for environmental contaminants. These limitations in addition to those noted in the table, impact the ability to produce analyses from which meaningful conclusions can be drawn. Nonetheless, improved sharing practices may help us to come closer to being able to quantify and visualize the potential association between certain environmental factors and health outcomes. Further, outlining the data assets and limitations helps us to better understand the gaps and factors that prevent more meaningful analysis. This understanding can guide efforts to improve and expand upon data collection practices and to formalize partnerships and/or develop legislation to maximize data sharing across entities.

Proposed Pilot Arsenic in Drinking Water

As mentioned in a previous section, due to the absence of key staff, this process is delayed. Additional information will be provided at a later date to include updates on next steps, a final proposed pilot project, and cost estimates.

Appendices

Table 1. Inventory of arsenic related data by type

Data Type	Data Set	Relevant Data Included in Set	Steward	Relevant Indicators	Geographic Granularity	Years Available	Limitations and Additional Notes
Health outcome: note that these health outcomes are not linked to arsenic alone, but to a number of contributing factors	NH State Cancer Registry	Cancer incidence	DPHS (HSDM)/ Dartmouth	By type/age/year/geography: case counts, incidence rates	Address- aggregated to town	1990-2015	No residential history, no exposure information (behavioral, occupational, etc.), screening data not collected, data less reliable from 1990-1994; data are good from 1995 onward To calculate rates or standardized incidence ratios, population data is needed (Claritas, US Census, etc.); statistics can be calculated based on cancer type, age at diagnosis, year of diagnosis, stage, and geography
	NH Vital Statistics	Cancer related deaths	DPHS (HSDM)	By type/age/year/geography: mortality counts, mortality rates	Address- aggregated to town	1999-2016	Inconsistent coding of cause of death; ICD coding of cause of death began in 1999 2017 data not yet available due to delays in out of state reporting To calculate rates, population data is needed
Exposure/ potential exposure: note that the presence of arsenic in water does not necessarily indicate exposure	NH Public Health Lab Well Water Quality	Well water test results	DPHS (PHL)	Private well water quality- Arsenic level	Address		There is no requirement for private well owners to test their water quality, and only a portion of those who test do so through the PHL; cannot draw conclusions about a geographic area based on results at one address (results can vary even between next door neighbors); the presence of arsenic does not necessarily mean exposure as people may obtain drinking water from another source Approximately 46% of NH residents receive water from private wells
	Private Lab Well Water Quality	Well water test results	Accredited private labs throughout NH and neighboring states	Private well water quality- Arsenic level	Address	NA- historically this data has not been shared/ made available	Same limitations as PHL well water quality results; RDL limit may vary between labs (a "no detect" reading may be based on a different minimum limit, ex. 5ppb vs 0); MCL changed in 2001 from 50 ppb to 10 ppb Private labs are not compelled to share data, DES and DPHS have not been successful in obtaining data from private labs
	DPHS Biomonitoring	Well water test results, exposure data (based on blood and urine)	DPHS (PHL)	Private well water quality- Arsenic level, arsenic exposure	Address- limited to towns targeted by study	2017	For well water quality- same limitations as PHL well water quality results; for exposure, sources other than water are not controlled for Biomonitoring study is targeted to specific towns, data is not representative of the State
	NHDES MtBE Remediation Bureau Results	Well water test results	DES	Private well water quality- Arsenic level	Georeferenced points		Same limitations as PHL and Private Lab well water quality results Program funding covers MtBE VOC related testing, but participants are given the option to pay for additional analysis (approximately 20% opt to have a test that includes arsenic), those who opt-in sign a waiver granting access to results to DES. Results from optional tests are not submitted to the EMD, but the Bureau has used the results that they receive to populate a separate database to track participation and exceedances (not all concentrations). Effective 7/1/2018, all data will be submitted to the EMD, including optional tests.
	DES Public Water System Monitoring Data	Water test results of PWSs - Arsenic	DES	PWS water quality- Arsenic level	PWS (population served), can be associated with approximate PWS service area	1994-Present	Prior to 2011, data was collected via paper- only results that exceeded 50% of the MCL were recorded electronically; MCL changed in 2001 from 50 ppb to 10 ppb; RDL may vary between labs; results are not constant (results are collected quarterly and may vary over time based on natural variation and treatment) PWS definition- a system that serves 25+ people, or 15+ service connections, for 60 or more days/year. Arsenic reporting is required for community PWSs (residential/year round), and non-transient/non-community systems (workplaces, schools, etc.) that serve the same 25+ people for at least 180 days/year. Transient systems (restaurants, motels, etc.) do not monitor for arsenic.
	USGS Arsenic Probability	Arsenic presence in groundwater	USGS	Probability of arsenic in groundwater at >1 ppb, >5 ppb, >10 ppb	Georeferenced points	2011	Data is modeled- it indicates a high probability of the presence of arsenic, based on a limited number of factors (excluding regional groundwater redox information, groundwater pH, well depth, fracture location and depth, and other groundwater chemistry measures) and on a limited number of samples, as such, it cannot be used to determine which individual wells will be at risk; presence of arsenic in groundwater does not necessarily translate to exposure Data most relevant when considering potential exposure among residents with private wells, a high probability of

							arsenic in bedrock where there is a PWS would not likely translate to exposure
	USGS	Arsenic presence in groundwater	USGS	Point in time level of arsenic in specific well locations	Georeferenced points/ well location	2006	Wells are located statewide, samples were drawn in 2006 and analyzed in 2015 (tested and proven to be sound) 3 new wells on the seacoast monitored bi-monthly from 2014-2018 for arsenic (and uranium) to show arsenic trends and seasonal variation
Behavioral Data: water source and consumption, testing, and treatment	NH BRFSS	Behavioral data around testing and consumption	DPHS (HSDM)	Drinking water source, water consumption, well water testing (ever/when), mitigation (avoidance or testing), awareness of health impacts from water contaminants, source of information/guidance about testing and treatment	Record level- aggregated to county (ability to look at Manchester and Nashua exclusive of Hillsborough County) or PHN	2014, 2017	Sample size may be too small to draw conclusions at the county level or to stratify by other factors (such as income, education, etc.), questions have not remained consistent year-to-year 2017 sub-state data will be released in the fall of 2018; 2018 data is in process of being collected, no timeline yet for data release
	NH PRAMS	Behavioral data around testing	DPHS (HSDM & MCH)	Drinking water source, well water testing (in 12 months prior to delivery), health care worker advisement on testing	State	2013-2016	Data limited to women who have recently given birth; no information about results or treatment
	Private Well Owner Survey	Behavioral data around testing, consumption, and treatment	Dartmouth Toxic Metals Superfund Research Program	Well water testing, well water treatment, concern about arsenic, water consumption, demographic data	State/regions within the State	2014	Not a representative random sample, results may not be generalizable7991

Acronym Key:
BRFSS: Behavioral Risk Factor Surveillance System
DES: Department of Environmental Services
DPHS: Department of Health and Human Services, Division of Public Health Services
EMD: Environmental Monitoring Database
HSDM: Bureau of Health Statistics and Data Management
MCL: Maximum Contaminant Level
MtBE: Methyl tert-butyl ether
PHL: Public Health Lab
PHN: Public Health Network
ppb: parts per billion
PRAMS: Pregnancy Risk Assessment Monitoring System
PWS: Public Water System
RDL: Reporting Detection Limit
USGS: United States Geological Survey
voc: volatile organic compound

Lori A. Shibinette
Commissioner

Lisa M. Morris
Director

STATE OF NEW HAMPSHIRE
DEPARTMENT OF HEALTH AND HUMAN SERVICES
DIVISION OF PUBLIC HEALTH SERVICES
BUREAU OF PUBLIC HEALTH PROTECTION

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March 1, 2020

Senator Thomas Sherman, Chair
Commission to Study Environmentally-triggered Chronic Illness
New Hampshire State House
Room 107
107 North Main Street
Concord, NH 03301

Re: ***Progress Report on Data Sharing between the New Hampshire Departments of Health and Human Services (DHHS) and Environmental Services (DES)*** (RSA 126-A:76, III) Chapter 229:5

Dear Senator Sherman:

As required by SB 85 (2019), an act reestablishing the commission to study Environmentally-triggered chronic illness, please find attached a second progress report for 2019-2020 that represents the joint work of DHHS and DES on data sharing practices and a summary of recent collaborative projects between the departments as required under paragraph 1.

The following documents are enclosed:

- SB 85 DHHS/DES Progress Report (data sharing and collaborative projects) March 1, 2020

Department staff are available to present the report to the Commission to Study Environmentally-triggered Chronic Illness during its next meeting scheduled for March 27, 2020. Please let us know if you have any questions.

Respectfully Submitted,

Lisa Morris, Director
Department of Health and Human Services
Division of Public Health Services

Mike Wimsatt, Director
NH Dept. of Environmental Services
Waste Management Division

cc: Members of the Commission on Environmentally-triggered chronic illness
Representative Stephen Shurtleff, Speaker of the House of Representatives
Senator Donna Soucy, Senate President
Mr. Michael York, State Librarian

2nd Progress Report for SB85

Submitted by:

New Hampshire Department of Health and Human Services
Division of Public Health Services
&
New Hampshire Department of Environmental Services

March 2020

Introduction

This is the second report related to Senate Bill (SB) 85 (2019), which directs the New Hampshire (NH) Department of Environmental Services (DES) and the Department of Health and Human Services (DHHS) to improve coordination and collaboration as it relates to environmental health, with a specific focus on data sharing.

This Report includes a summary of background information, an update on data sharing practices between the two agencies, a review of current collaborations, and recommendations for future work.

Background

Senate Bill (SB) 85 (2019), re-established a legislative commission to study environmentally-triggered chronic illness. The objectives of SB85 build on previous work related to House Bill (HB) 511 (2017) and HB 1356 (2018). The work of this Commission is focused on conducting environmental health surveillance and improving coordination and collaboration between DES and DHHS in order to allocate resources efficiently to reduce exposure to environmental contaminants and prevent disease.

The SB 85 Statement of Intent reads as follows: "The general court recognizes that nearly half of adults in the United States have at least one chronic health condition and chronic diseases are responsible for increased health care costs. Seventy percent of health care costs in the United States are for chronic diseases. Some chronic diseases are known or thought to be associated with environmental causes. According to the Centers for Disease Control, the state of New Hampshire has the highest rates of people with bladder, breast, esophageal, and pediatric cancer in the country. In addition, a double pediatric cancer cluster was identified in the seacoast of New Hampshire in 2014. Therefore, the general court hereby establishes the commission to study environmentally-triggered chronic illness."

HB 511 (2017) established a legislative commission to study environmentally-triggered chronic illness.

HB 1356 (2018), charged DES and DHHS to develop and implement a method by which the departments share certain health outcome and environmental data. The HB 1356 Preliminary Report submitted in August 2018 includes more information on the status of the activities listed below and is attached in the Appendix.

Specifically, the departments were tasked to:

- Update a memorandum of agreement related to data sharing;
- Sign a joint standard operating procedure on how data layers can be shared between the two departments to identify linkages between environmental contaminants and health outcomes;
- Hold a presentation on the departments' ongoing, joint efforts under the Centers for Disease Control and Prevention environmental public health tracking cooperative agreement; and
- Compile a report describing and estimating the cost to perform a 2-way pilot project between the departments on arsenic in drinking water, where both health effects and environmental data exist.

Conceptual Diagram: Current Data Sharing Practices Across DHHS DPHS and DES

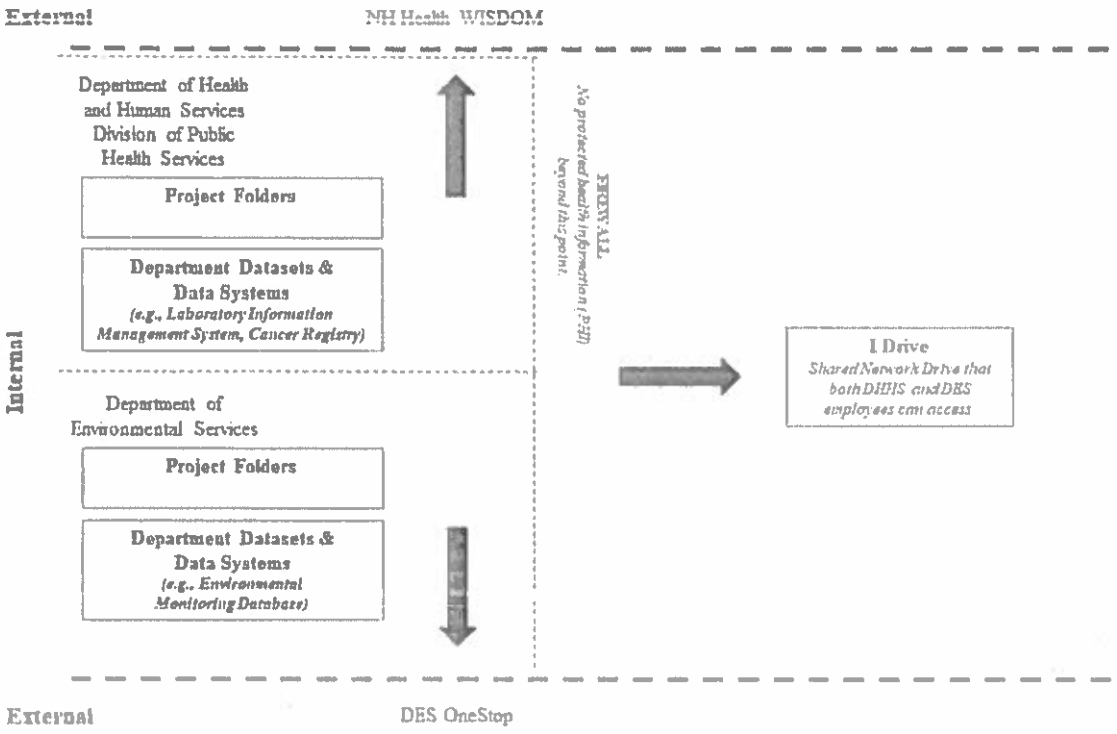


Figure 1.

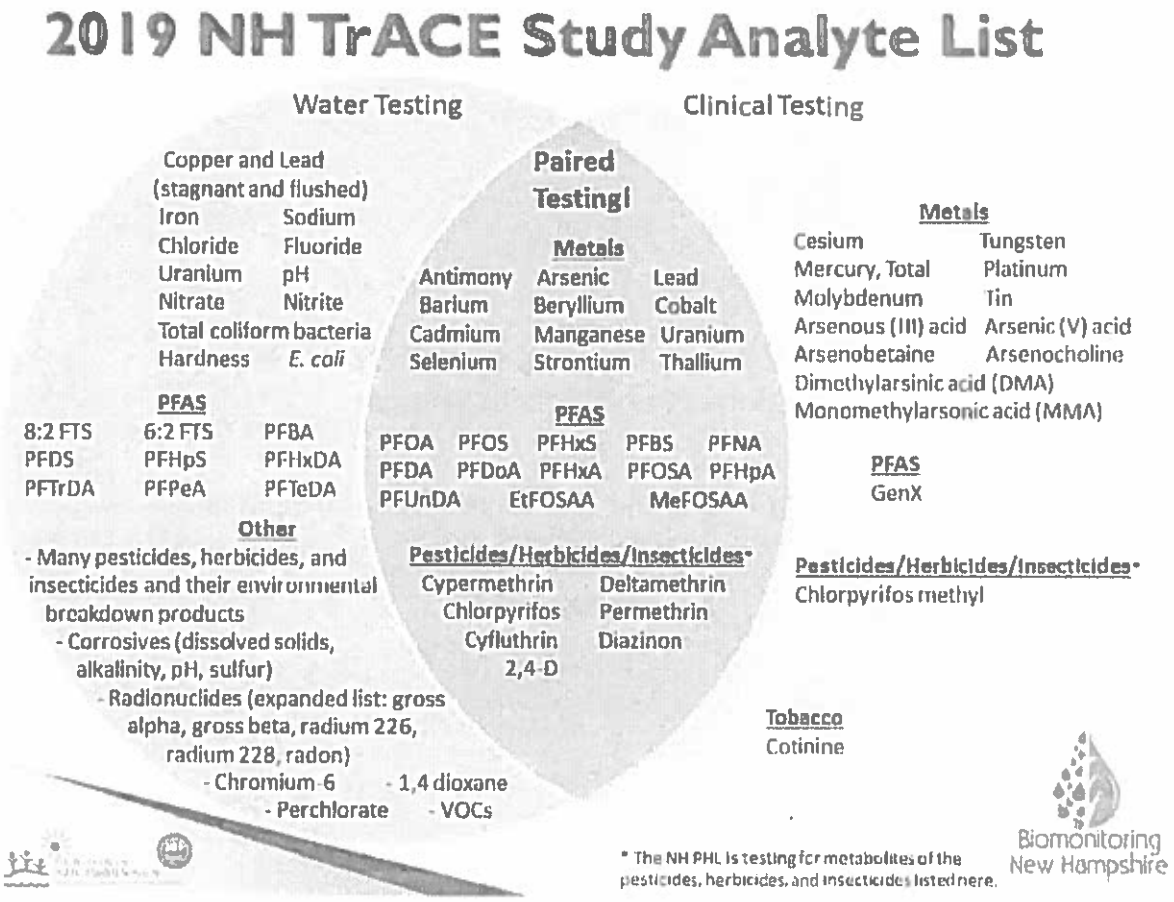


Figure 2.

Recommendations

We look forward to continuing to engage in this work as we further refine our data sharing practices and find innovative ways to use data in order to drive decision making, while also recognizing the limitations of the data and resources available to support this work. In collaboration with the Commission, we will explore further opportunities to improve data sharing and analysis of environmental exposure and health outcome data.

References Used in this Report

NH DES OneStop Data Portal: https://www.des.nh.gov/onestop/
NH Environmental Public Health Tracking Program: https://www.nh.gov/epht/
NH Health WISDOM Data Portal: https://wisdom.dhhs.nh.gov/wisdom/#main
BiomonitoringNH Program: https://tinyurl.com/BiomonitoringNH
2019 NH TrACE Study: https://tinyurl.com/2019TrACEStudy

3rd Progress Report for the Commission to Study Environmentally – Triggered Chronic Illness
SB 85 (2019)

Submitted by:

New Hampshire Department of Health and Human Services
Division of Public Health Services
&
New Hampshire Department of Environmental Services

September 2020

Introduction

This is the third report related to Senate Bill SB 85 (2019), which directs the New Hampshire Department of Environmental Services (DES) and the New Hampshire Department of Health and Human Services (DHHS) to improve coordination and collaboration as it relates to environmental health, with a specific focus on data sharing.

Due to the ongoing COVID-19 Pandemic, this report includes a brief summary from both NH DHHS and NH DES.

Background

Senate Bill SB 85 (2019) re-established a legislative commission to study environmentally triggered chronic illness. The objectives of SB85 build on previous work related to House Bill HB 511 (2017) and HB 1356 (2018). The work of this Commission is focused on conducting environmental health surveillance and improving coordination and collaboration between DES and DHHS in order to allocate resources efficiently to reduce exposure to environmental contaminants and prevent disease.

The SB 85 Statement of Intent reads as follows: "The general court recognizes that nearly half of adults in the United States have at least one chronic health condition and chronic diseases are responsible for increased health care costs. Seventy percent of health care costs in the United States are for chronic diseases. Some chronic diseases are known or thought to be associated with environmental causes. According to the Centers for Disease Control, the state of New Hampshire has the highest rates of people with bladder, breast, esophageal, and pediatric cancer in the country. In addition, a double pediatric cancer cluster was identified in the seacoast of New Hampshire in 2014. Therefore, the general court hereby establishes the commission to study environmentally-triggered chronic illness."

HB 511 (2017) established a legislative commission to study environmentally-triggered chronic illness.

HB 1356 (2018), charged DES and DHHS to develop and implement a method by which the departments share certain health outcome and environmental data. The HB 1356 Preliminary Report submitted in August 2018 includes more information on the status of the activities listed below and is attached in the Appendix.

Specifically, the departments were requested to:

- Update a memorandum of agreement related to data sharing;
- Sign a joint standard operating procedure on how data layers can be shared between the two departments to identify linkages between environmental contaminants and health outcomes;
- Hold a presentation on the departments' ongoing, joint efforts under the Centers for Disease Control and Prevention environmental public health tracking cooperative agreement; and
- Compile a report describing and estimating the cost to perform a 2-way pilot project between the departments on arsenic in drinking water, where both health effects and environmental data exist.

Updates from NH Department of Health and Human Services (NH DHHS)

- Due to the COVID-19 pandemic, most DPHS staff have been working remotely. We have been able to maintain cross-program collaboration via tools that have been provided to us by the agency, such as Zoom, Jabber, and VPN access;
- We are continuing to participate in a Dartmouth led effort to develop PFAS materials specific to NH, and we will review draft documents as they become available;
- The amendment for Dartmouth Cancer Registry Contract is underway to include funding from the NH Drinking Water and Groundwater Trust Fund to enhance the State's work related to environmental and childhood-related cancers. This funding will cover a literature review for environmentally-related childhood cancers, analysis of radiological monitoring data, convening of experts in childhood cancer, re-analysis of childhood cancer data in NH and nationally, and information gathering from families of children affected by cancer to better understand their unmet needs to inform the health department in future program planning;
- The CDC has reduced the funding awarded to NH DHHS for SFY21 for the Comprehensive Cancer Control Program and subsequently we are having discussions about the impact these reductions will have on the capacity of the Cancer Registry at Dartmouth to continue to provide high quality cancer data to researchers and public health professionals;
- NH DES and DHHS were awarded the ATSDR APPLETREE Grant, which has two components:
    1. Conducting site-investigations at hazardous waste sites and other locations to eliminate human exposure with community education and outreach; and
    2. Supporting the Choose Safe Places for Early Care and Education Program focused on the safe sighting of childcare facilities; and
- NH DES and DHHS applied for a collaborative grant from CDC's National Center for Environmental Health focused on building environmental health capacity and leveraging well water quality data to drive action and policy.

Biomonitoring NH TrACE Project:

The 2019 NH Tracking and Assessment of Chemical Exposures (TrACE) Study led by the NH Biomonitoring Program (BiomonitoringNH), within DPHS, is a statewide public health surveillance study looking at many different metals, pesticides, per- and polyfluoroalkyl substances (PFAS), and other chemicals in NH residents. BiomonitoringNH tested approximately 350 NH residents (6 years and older) as well as the water from their homes. BiomonitoringNH worked with the NH Department of Environmental Services (DES) and the NH Environmental Public Health Tracking Program (EPHT) to collect and test these samples. This type of statewide surveillance study ensures that comprehensive data are collected for: (1) residential history, (2) exposure history, (3) environmental data, and (4) clinical data that allows for more in-depth analysis of potential associations.

Approximately 50 chemicals were tested in human blood and urine, 270 chemicals were tested in private well water, and 90 chemicals were tested in public water. This represents a vast amount of data. The EPHT Program, which also sits within DPHS, is responsible for the joint analysis of this data and routinely accesses shared project folders on both the I Drive and secure project folders on the secure DHHS server. Summary reports will be shared with all TrACE Study participants. The summary reports

and supporting information will also be shared publicly through several channels including the NH Health WISDOM Data Portal and Conference Presentations.

Creation and dissemination of the Participant Summary Report was delayed due to COVID-19 response activities within the Public Health Lab. However, the Biomonitoring NH Team plans to complete the reports and send them to participants within the next few months. Once finalized, the reports will eventually be made available on the WISDOM Data Portal.

Updates from NH Department of Environmental Services (NH DES)

Distribution of Filter Pitchers to Vulnerable Populations:

DES, in cooperation with DHHS and the state's network of Women, Infant, and Children (WIC) clinics, has hired a contractor with funding from the NH Drinking Water and Groundwater Trust fund to implement a project which will provide filter pitchers to an estimated 524 low-income pregnant women using private wells with elevated arsenic, and to provide follow-up support to program participants. The project is designed to (1) establish a sustained practice among those families of using filter pitchers and replacing filter cartridges as needed, (2) generate valuable information regarding the effectiveness of this approach to reducing exposure to contaminated drinking water and (3) reinforce a public information initiative regarding the use of certain verified filter pitchers as an affordable means of treating drinking water from private wells, particularly for pregnant women. In addition, the project will seek to educate participants about the importance of continued well water testing. The DES-DHHS Project Advisory Committee has worked with the contractor to develop materials and protocols for the project. Roll-out was delayed due to the closure of WIC clinics to in-person services. The contract has been modified and additional funding provided to roll-out the project (begin enrolling participants) in September 2020 (two months later than initially planned) virtually through phone contact and mailing of water test kits to participants.

Statewide Private Well Sampling Initiative

The Statewide Private Well Sampling Initiative is a NHDES project funded by the New Hampshire Drinking Water & Groundwater Trust Fund to provide homeowners with information about the quality of their drinking water, and when necessary, steps that can be taken to improve water quality. The project involves sampling of nearly 500 randomly selected private drinking water wells and analysis of those samples for over 250 chemicals. It is the first statewide assessment of bacteria, nitrate, lead, fluoride, manganese, arsenic, radionuclides, and salt to be conducted in the state. The battery of tests also includes several emerging contaminants, including perchlorate, 1,4-dioxane, PFAS, and pesticides and their breakdown products. Most of the sampling and analysis have been completed to date, but the COVID-19 pandemic has delayed collection of some remaining samples. More information is available about the study at the following link: https://www4.des.state.nh.us/nh-dwg-trust/?page_id=998

NHDES and DHHS partnered to leverage the impact of this study by including nearly 100 homes that were also randomly selected to participate in DHHS's TrACE biomonitoring study (see above). This collaboration will provide information about the relationship between chemicals measured in drinking water and in the bodies of the study participants.

Recommendations

We look forward to continuing to engage in this work as we further refine our data sharing practices and find innovative ways to use data in order to drive decision making, while also recognizing the limitations of the data and resources available to support this work. In collaboration with the Commission, we will explore further opportunities to improve data sharing and analysis of environmental exposure and health outcome data.

References Used in this Report

NH DES OneStop Data Portal: https://www.des.nh.gov/onestop/
NH Environmental Public Health Tracking Program: https://www.nh.gov/epht/
NH Health WISDOM Data Portal: https://wisdom.dhhs.nh.gov/wisdom/#main
BiomonitoringNH Program: https://tinyurl.com/BiomonitoringNH
2019 NH TrACE Study: https://tinyurl.com/2019TrACEStudy

4th Progress Report for SB85

Submitted by:

New Hampshire Department of Health and Human Services
Division of Public Health Services
&
New Hampshire Department of Environmental Services

May 2021

Introduction
This is the fourth report related to Senate Bill (SB) 85 (2019), which directs the New Hampshire (NH) Department of Environmental Services (DES) and the Department of Health and Human Services (DHHS) to improve coordination and collaboration as it relates to environmental health, with a specific focus on data sharing.

Background
Senate Bill (SB) 85 (2019), re-established a legislative commission to study environmentally-triggered chronic illness. The objectives of SB85 build on previous work related to House Bill (HB) 511 (2017) and HB 1356 (2018). The work of this Commission is focused on conducting environmental health surveillance and improving coordination and collaboration between DES and DHHS in order to allocate resources efficiently to reduce exposure to environmental contaminants and prevent disease.

The SB 85 Statement of Intent reads as follows: "The general court recognizes that nearly half of adults in the United States have at least one chronic health condition and chronic diseases are responsible for increased health care costs. Seventy percent of health care costs in the United States are for chronic diseases. Some chronic diseases are known or thought to be associated with environmental causes. According to the Centers for Disease Control, the state of New Hampshire has the highest rates of people with bladder, breast, esophageal, and pediatric cancer in the country. In addition, a double pediatric cancer cluster was identified in the seacoast of New Hampshire in 2014. Therefore, the general court hereby establishes the commission to study environmentally-triggered chronic illness."

HB 511 (2017) established a legislative commission to study environmentally-triggered chronic illness.

HB 1356 (2018), charged DES and DHHS to develop and implement a method by which the departments share certain health outcome and environmental data. The HB 1356 Preliminary Report submitted in August 2018 includes more information on the status of the activities listed below and is attached in the Appendix.

Specifically, the departments were tasked to:

- Update a memorandum of agreement related to data sharing;
- Sign a joint standard operating procedure on how data layers can be shared between the two departments to identify linkages between environmental contaminants and health outcomes;
- Hold a presentation on the departments' ongoing, joint efforts under the Centers for Disease Control and Prevention environmental public health tracking cooperative agreement; and
- Compile a report describing and estimating the cost to perform a 2-way pilot project between the departments on arsenic in drinking water, where both health effects and environmental data exist.

Updates from NH Department of Health and Human Services (NH DHHS)
Division of Public Health Services (DPHS)

Biomonitoring NH TrACE Project

The 2019 NH Tracking and Assessment of Chemical Exposures (TrACE) Study led by the NH Biomonitoring Program (BiomonitoringNH), within DPHS, was a statewide public health surveillance study that looked at many different metals, pesticides, per- and polyfluoroalkyl substances (PFAS), and other chemicals in NH residents. BiomonitoringNH tested 336 NH residents (6 years and older) as well as the water from their homes. BiomonitoringNH worked with the NH Department of Environmental Services (DES) and the NH Environmental Public Health Tracking Program (EPHT) to collect and test these samples. This type of statewide surveillance study ensures that comprehensive data are collected for: (1) residential history, (2) exposure history, (3) environmental data, and (4) clinical data that allows for more in-depth analysis of potential associations.

Fifty chemicals were tested in human blood and urine, 270 chemicals were tested in private well water, and 90 chemicals were tested in public water. This represents a vast amount of data. The Environmental Public Health Tracking (EPHT) Program, which also sits within DPHS, is responsible for the joint analysis of this data and routinely accesses shared project folders. A summary report will be shared with all TrACE Study participants. The summary report and supporting information will also be shared publicly through several channels including the NH Health WISDOM Data Portal, conference presentations, and public webinar.

Creation and dissemination of the Participant Summary Report was delayed due to COVID-19 response activities within the Public Health Labs. However, the Biomonitoring NH Team recently finalized a draft of the report and shared it with NHDES and NH DPHS leadership for feedback. Once their comments have been reviewed and updates have been completed, then the report will be published and shared broadly with TrACE Study participants, environmental and public health stakeholders, legislators, and the public.

NH Environmental Public Health Tracking Well Water Data Analysis Project

NH EPHT worked collaboratively with the NH Department of Environmental Services (NHDES) to combine existing data and visualize data pertaining to arsenic exceedance rates across New Hampshire. Over 40% of New Hampshire's population receives drinking water from private wells and state legislators are interested in resources that visualize arsenic exceedance rates in their districts due to NH's unique geology. NH EPHT combined well sample data collected by the NH Public health Laboratories as well as the NHDES for a five-year period (2014-2018). This project resulted in 24 regional maps and 1 state map that visualized arsenic exceedance rates at the town level for each senate district and the entire state. The final report will be used as a communication resource to educate the general public as well as policy makers about the potential risk of arsenic in drinking water among private well users.

Data sets were cleaned and combined. A total of 5,719 samples were used for the study. A summary table for each district included: Estimated Population Served by Residential Wells, Estimated District Population, Number of Well Water Samples, Number of Exceedances, Percent Exceedances > 5ppb, and Estimated Children Exposed < 6. Population estimates were based on current NH DHHS population estimates. Number of people served by residential wells were based on current USGS estimates. Summaries were completed for each senate district.

We will build on this project in the next year as we develop a Well Water Quality Dashboard for the Public Health Data Portal and build environmental health (EH) capacity broadly. The goals of this program are to: 1) use EH data for data-driven decision-making; 2) identify and address EH hazards; and 3) assess the effectiveness and impact of EH services and interventions. To address these goals, environmental data from across various DES and DPHS databases will be aggregated, deidentified, and undergo statistical analysis and visualization using programs such as GIS (StoryMaps) and Tableau (web-based dashboards). This data will be made publicly available through the DPHS WISDOM Data Portal, supported by the EPHT program with a public education and outreach component. The aggregated data will also be used by DES and DPHS to identify areas with environmental hazards which may adversely impact public health with a focus on underserved and/or disadvantaged populations. The ultimate goal of this work is to build and strengthen the core capacity to use environmental water quality data to inform decision making and to identify environmental health hazards identified in drinking water, particularly in water from private wells, which serve nearly half of NH residents.

Updates from NH Department of Environmental Services (NH DES)

Distribution of Filter Pitchers to Vulnerable Populations

NH DES, in cooperation with DHHS and the state's network of Women, Infant, and Children (WIC) clinics, has hired a contractor with funding from the NH Drinking Water and Groundwater Trust fund to implement a project which will provide filter pitchers to an estimated 524 low-income pregnant women using private wells with elevated arsenic, and to provide follow-up support to program participants. The project is currently in a pilot phase, which is limited to WIC locations in Rockingham and Hillsboro counties, and is expected to roll-out statewide in the fall of 2021. Following a pandemic related delay, project implementation began in September of 2020. It is important to note that all WIC services are currently being offered remotely. Pandemic operations coupled with all that people are balancing through the pandemic, are likely impacting the level of participation. The project team has continued to review data and make modifications to ensure improvement and success.

WIC nutritionists were provided training, and began screening pregnant WIC mothers for participation in the program, with eligibility being based on having a private well as the source of drinking water. Approximately 400 women have been screened to date, and approximately 11% have reported that they consume drinking water from a private well. This differs from statewide estimates relative to water source; a reflection of the fact that the WIC population screened so far is more densely populated in urban areas (specifically in Manchester and Nashua within the counties that are part of the pilot). Approximately 40 WIC moms have been provided with water quality test kits, and approximately 25% (10 kits) have been returned. It is expected that some of the outstanding test kits will still be returned; and the project team has modified the schedule and practice of sending reminders to promote follow-through. Also differing from expectations based on statewide data, elevated levels of arsenic have been present in about 50% of returned kits. It is important to note that these measures are based on small numbers and may not be generalizable to the larger WIC population. Those with arsenic above the MCL of 5 ppb have been provided with filter pitchers.

The program has gained local and national attention. The Association of Public Health Laboratories will be highlighting the program as an example of a promising Environmental Justice Practice in their association's journal this summer. A researcher from the Prevention Research Center at the Harvard T.H. Chan School of Public Health has interviewed the project team for a series of briefs and an article that they are writing about strategies to improve safe drinking water in the homes of low-income families with young children. In addition, a staff member at Dartmouth Hitchcock Medical Center interviewed the team to learn more about the program so that they can consider implementation of a similar program among their patient population.

ATSDR's Partnership to Promote Localized Efforts to Reduce Environmental Exposure (APPLETREE):

New Hampshire Department of Environmental Services (NHDES) has been awarded a three year cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR); re-establishing the APPLETREE program. APPLETREE stands for the Agency for Toxic Substances and Disease Registry's Partnership to Promote Local Efforts to Reduce Environmental Exposures; a formal partnership enabling us to be successful at our work is established between ATSDR, NHDES, and the Department of Health and Human Services, Division of Public Health Services (NH DHHS DPHS).
The team includes staff from both partnering NH agencies; we have expertise in health risk assessment, environmental health, toxicology, health education, community engagement, and project

management. APPLETREE's primary goal is to help reduce NH residents' exposure to hazardous chemicals, with a focus on National Priority List (e.g., Superfund) sites and other state and community identified sites. The goal is accomplished by identifying and assessing potential exposures, summarizing findings, developing health-based recommendations, and engaging community members to promote action to reduce exposure.

Lead in Drinking Water at NH Schools and Childcare Facilities

On February 8, 2018, Governor Sununu signed Senate Bill 247 Prevention of Childhood Lead Poisoning. This law requires, among other actions, that all public and private schools and licensed childcare facilities test for lead in their drinking water at all locations where water is available for consumption by children. Under the law, facilities must complete three rounds of testing. During the first round of testing, approximately 600 schools and 500 childcare facilities sampled their drinking water for lead, representing approximately 90% of schools and 60% of childcare facilities in New Hampshire. Any drinking water locations showing 15 parts per billion (ppb) or higher were required to be remediated, with a remediation plan submitted to and approved by the NHDES Drinking Water and Groundwater Bureau (DWGB). To support remediation efforts, the New Hampshire Department of Education (NHDOE) secured a grant totaling $1.6 million from the New Hampshire Drinking Water and Groundwater Trust Fund (DWGTF). This grant program reimburses public and private schools for 50% of the costs of remediation of drinking water locations with lead results at 5 ppb or higher. NHDES works with schools to provide support for remediation efforts and helps facilitate the grant application and approval process with NHDOE. NHDES has received two rounds of federal funding (FY2019 and FY2020) from the Water Infrastructure Improvement for the Nation (WIIN) Act, administered by the U.S. Environmental Protection Agency (USEPA), for a total of $1.274 million. A third round of WIIN funding in the amount of $0.87 million is anticipated in FY 2021. WIIN funding will be used to promote public understanding of the health risks associated with childhood exposure to lead in drinking water and to promote compliance with SB 247.

Specifically:

- A contractor will be hired to create a web portal / data dashboard to visualize and analyze lead in drinking water data. The dashboard will provide summary statistics (e.g., number of samples collected, number of schools sampled, number of samples above 5 and 15 ppb, etc.), as well as information on remediation completed at specific drinking water locations.
- Laboratory costs for lead analysis for the second round of testing required by SB 247 will be covered for public schools and licensed childcare facilities. Additional support will be provided to public schools and licensed childcare facilities in disadvantaged communities. NHDES is in discussions with NH DOE and NH DHHS regarding how to best assist these schools.
- A public health outreach contractor will be hired to create a multi-media education and outreach campaign.

NHDES is collaborating with programs at NH DHHS, including Childcare Licensing, Environmental Public Health Tracking (EPHT), Healthy Homes and Lead Poisoning Prevention program, and the Choose Safe Places program, as well as NH DOE, on ways to share data and coordinate messaging with schools and childcare facilities.

Statewide Private Well Sampling Initiative

The Statewide Private Well Sampling Initiative is a NHDES project funded by the New Hampshire Drinking Water & Groundwater Trust Fund to provide homeowners with information about the quality of their drinking water, and when necessary, steps that can be taken to improve water quality. The project involves sampling of nearly 500 randomly selected private drinking water wells and analysis of those samples for over 250 chemicals. It is the first statewide assessment of bacteria, nitrate, lead, fluoride, manganese, arsenic radionuclides, and salt to be conducted in the state. The battery of tests also includes several emerging contaminants, including perchlorate, 1,4-dioxane, PFAS, and pesticides and their breakdown products. Most of the sampling and analysis have been completed to date, but the COVID-19 pandemic delayed collection of some remaining samples. NHDES will complete data collection and analysis in the coming months and expects to issue a report in the Fall of 2021. More information is available about the study at the following link:
https://www4.des.state.nh.us/nh-dwg-trust/?page_id=998

NHDES and DHHS partnered to leverage the impact of this study by including nearly 100 homes that were also randomly selected to participate in DHHS's TrACE biomonitoring study. This collaboration will provide information about the relationship between chemicals measured in drinking water and in the bodies of the study participants. This collaborative project will be presented at the upcoming NHDES Drinking Water Source Protection Conference May 19-20, 2021.

Recommendations

We look forward to continuing to engage in this work as we further refine our data sharing practices and find innovative ways to use data in order to drive decision making, while also recognizing the limitations of the data and resources available to support this work. In collaboration with the Commission, we will explore further opportunities to improve data sharing and analysis of environmental exposure and health outcome data.

References Used in this Report

NH DES OneStop Data Portal: https://www.des.nh.gov/onestop/
NH Environmental Public Health Tracking Program: https://www.nh.gov/epht/
NH Health WISDOM Data Portal: https://wisdom.dhhs.nh.gov/wisdom/#main
BiomonitoringNH Program: https://tinyurl.com/BiomonitoringNH
2019 NH TrACE Study: https://tinyurl.com/2019TrACEStudy

APPENDIX III:

Biomonitoring TrACE 2-page Summary

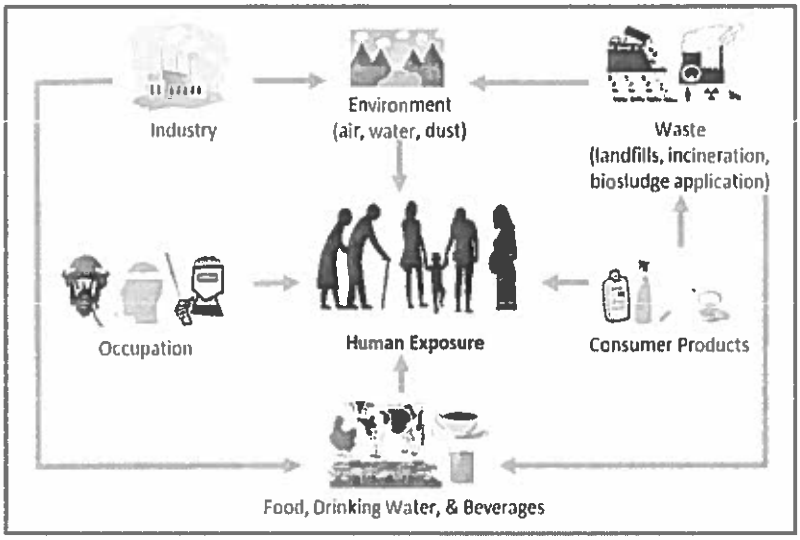
2019 NH Tracking and Assessment of Chemical Exposures (TrACE) Study
KEY FINDINGS

Biomonitoring New Hampshire

Biomonitoring is the assessment of chemicals or their breakdown products in human specimens such as urine, blood, or tissue. These chemicals may be natural, such as arsenic and uranium from ground-water. They may also be man-made, such as pesticides from agriculture.

Biomonitoring results are useful because they can help people make decisions. For example, whether they should use less of, or completely stop using, a product. They also inform laws and help prioritize public health work. The purpose of the 2019 NH TrACE Study was to see if NH residents had more, less, or similar amounts of chemicals in their bodies (on average) as the representative US population from the CDC National Exposure Report (http://cdc.gov/exposurereport).

Examples of human exposure to chemicals.

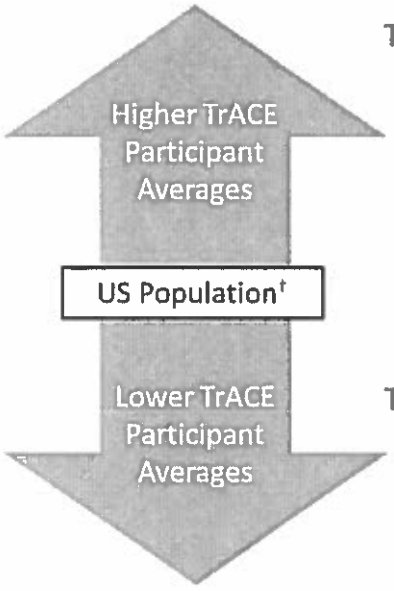


The 2019 TrACE Study tested for 50 chemicals in participant blood, serum, and urine. Hundreds of chemicals were also tested for in participants' household water with many of the same chemicals tested for in people to see if there was a connection between water quality and body burden. The lists of the chemicals tested for in participants' bodies, household water, and paired testing can be found in the Summary Report at (tinyurl.com/2019TrACEReport).

This document is a summary of the 2019 TrACE Study statistically significant* findings. Not all findings in the Summary Report could be included here, but can be found in the full report (website address above). Several considerations should be taken into account when reviewing the results of this study and they are explained in detail in the Summary Report. These include the reasons for conducting the study and limitations.

*See the Summary Report for key terms.

Comparison of TrACE and US Averages



TrACE participant averages were higher for:

- Blood metals: **lead and total mercury**
- Serum PFAS: **PFDA**
- Urine metals: **cadmium, cesium, lead, and total arsenic**
- Urine pesticide, herbicide, and insecticide metabolites: **PNP**

TrACE participant averages were lower for:

- Blood metals: **manganese and selenium**
- Serum PFAS: **PFHxS and PFOS**
- Urine metals: **cobalt**

†The US Population is the non-Hispanic white population from the National Exposure Report. It most closely matches the demographics of NH.

People come into contact with chemicals in many ways and it is important to remember that exposures other than drinking water may contribute to these differences. These include occupation, product usage, recreational activities, and food and beverage consumption, to name a few. Such differences were not controlled for in these analyses.

Biomonitoring Results by Home Water Source

TrACE‡ private well users had higher average levels in their bodies than public drinking water users for:

- Blood metals: **lead**
- Serum PFAS: **PFOS**
- Urine metals: **uranium**

TrACE public drinking water users had higher average levels in their bodies than private drinking water users for:

- Serum PFAS: **PFOA**

‡TrACE refers to participants of the 2019 NH Tracking and Assessment of Chemicals Exposure Study, who are residents of NH.

Household Water Quality

Water treatment systems are working. Contaminants that may affect health are being removed.

Finished* private well water had lower levels of arsenic, manganese, radon, and uranium than raw* private well water.

Water health limits and screening levels are successful at improving water quality.

There were fewer contaminants in public drinking water than in private well water. People using private wells at home should test and treat their water, if indicated.

*See the Summary Report for key terms.

Recommendations

- **Talk with your healthcare provider and explore your potential for health effects from chemicals.** TrACE Study participants are encouraged to share their clinical and water results with their healthcare providers to determine whether they should take steps to reduce their exposure to chemicals.
- **Continue testing your water, install a treatment system (if indicated), and maintain it.** The NH Public Health Laboratories (NH PHL) provides water testing for a fee. For test kits, visit tinyurl.com/OrderWaterTestKit or call 603-271-3445. For more information about water testing and water treatment options, please contact NHDES at 603-271-2513, DWGBinfo@des.nh.gov, or visit tinyurl.com/NHDESWaterTesting. There are multiple ways to address the water quality issues identified in this study.
- **Test your home air for radon and install a mitigation system (if indicated).** Radon can enter your home air from cracks in the foundation/walls or from running water. Exposure to radon in air is the leading environmental cause of cancer deaths in the US.

Contact Information

Data and information from the 2019 NH TrACE Study will be presented on the NH Health WISDOM website at https://wisdom.dhhs.nh.gov. Additional information about this study and the BiomonitoringNH Program is available at tinyurl.com/BiomonitoringNH. Email BiomonitoringNH@dhhs.nh.gov or call 603-271-4611 with questions.

APPENDIX IV:

Data Subcommittee Interim Draft Report for SB85 Commission

I. Charge of Data Subcommittee:

1. Review relevant charges as outlined in the original bill such as:
    a. Determine which entities report chronic diseases
    b. Recommend ways to alert public health officials of trends
    c. Recommend methods to inform the public of trends
    d. Recommend data sources
    e. Define by codes the indicators to be monitored
    f. Study current health databases
    g. Research existing reports
    h. Outline a "future state" of data outputs and reports
    i. Identify gaps in surveillance and reporting and capacity
2. Develop conceptual map to help organize the Commission's goals and objectives and recommendations.
3. Review existing NH DHHS and NH DES communication protocols related to environmental hazards to consider adoption.
4. Assess data-related accomplishments to-date and outline future work

II. Members:

Mindi Messmer, Chair
Rep. Nancy Murphy
Kathleen Bush, NHDHHS
Amy Costello, UNH
Dan Tzizik, NH Medical Society

III. Introduction

This subcommittee was established to focus on data specific activities related to studying environmentally-triggered chronic disease.

IV. Process

The subcommittee assessed the current state of knowledge through committee member input and agency presentations. During the course of the subcommittee work, testimony has been received by NHDHHS, ATSDR, and NHDES. The following presented to the health subcommittee:

Presentations to the Full Commission included:

1. NH DHHS Cancer Program Updates, Whitney Hammond, Chronic Disease Director
2. NH DHHS Lead Program Updates, Beverly Drouin and Gail Gettens, Healthy Homes and Lead Poisoning Prevention Program
3. NH DHHS Radon Program Updates, Owen David, Radon Program Manager
4. Jeff Salloway, Epi Considerations
5. NH DHHS Community Health Outlooks, Dr. Kathleen Bush, EPHT Program Manager
6. NHDHHS, TRACE Biomonitoring Study
7. Enterprise Business Intelligence (EBI) presentation on data dashboards.

V. Summary of Meetings/Findings

Because of the coronavirus pandemic, the work of the health subcommittee was paused for a period of time and was limited in receiving necessary testimony and opportunities for group work by members. To date, the subcommittee has met to address the stated responsibilities of the data subcommittee on 10/6/2020, 11/17/2020, 11/30/2020, 3/18/2021, 4/23/2021, and 5/7/2021.

VI. Data Subcommittee Completed Tasks
Monitoring and Surveillance & Reporting

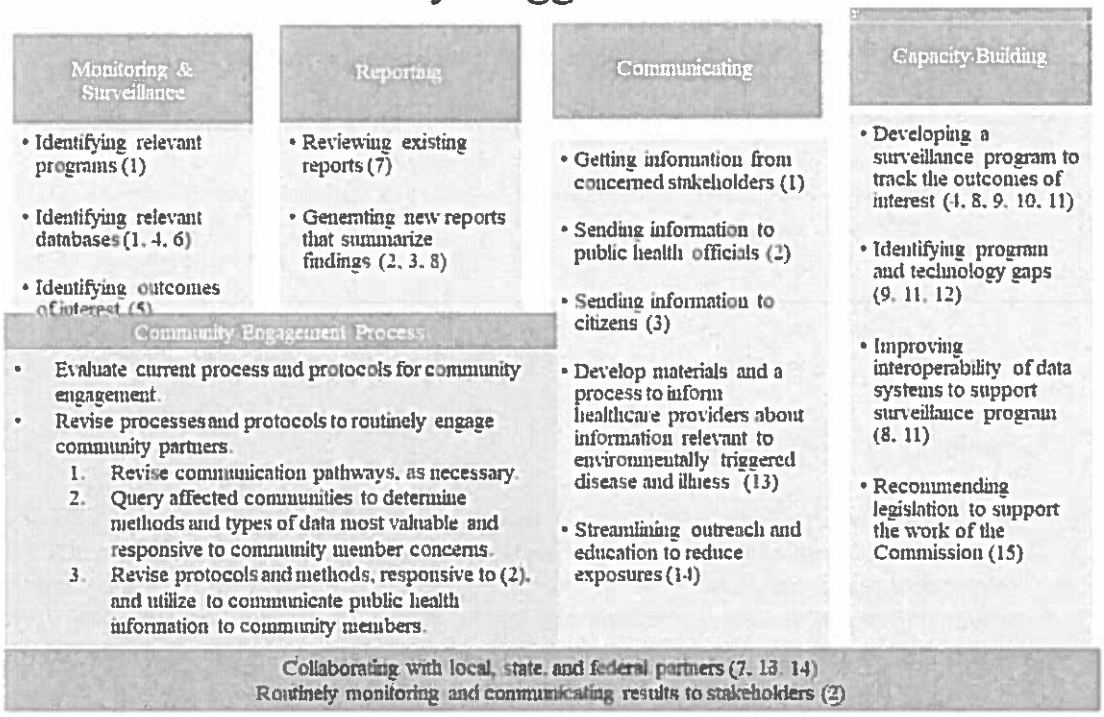
The following tasks have been completed since the initiation of the data subcommittee.

The data subcommittee developed the following framework or conceptual diagram to help focus our efforts. Each charge of the Commission, as outlined in the original bill, falls into one of four topic areas.

1. Monitoring & Surveillance
2. Reporting
3. Communicating
4. Capacity Building

In addition there are two cross-cutting topics that include (a) collaborating with local, state, and federal partners, and (b) routinely monitoring and communicating results to stakeholders.

SB85: Commission to Study Environmentally-Triggered Chronic Illness



The subcommittee received testimony from agencies about existing programs and funding that could be made available to address concerns about the health impacts in the affected area.

1. Monitoring and Surveillance
    a) Identifying relevant programs
        i. The New Hampshire Environmental Public Health Tracking Program is focused on tracking environmental health outcomes across space and time. Key topic areas include: air quality, water quality, respiratory outcomes, cardiovascular outcomes, birth outcomes, cancer, childhood lead poisoning, and climate change.
        For additional information see this two-page program factsheet:
        https://www.nh.gov/epht/documents/what-is-epht-final.pdf

        ii. In April 2020, The New Hampshire Department of Environmental Services (NHDES) and Department of Health and Human Services (DHHS) were awarded the Agency for Toxic Substances and Disease Registry (ATSDR) APPLETREE Grant. This is a 3-year award for

approximately $400,000 per year and will fund a Program Manager and Risk Assessor within DES as well as a Health Educator within the DHHS Department of Public Health Tracking System (DPHS). The grant has two components:

1. Conducting site-investigations (e.g., health consultations and health risk assessments) at hazardous waste sites and other locations to reduce or eliminate human exposure to environmental contamination with a focus on community engagement, education, and outreach; and,
2. Supporting the Choose Safe Places for Early Care and Education Program focused on the safe sighting of childcare facilities and the development of environmental health standards that may be incorporated into sighting criteria.

b) Identifying relevant databases

i. *NH Health WISDOM*

NH Health WISDOM is an interactive system assembled by the Department of Health and Human Services, Division of Public Health Services, in order to aggregate public health data and produce customized analysis. Data in WISDOM is organized around The New Hampshire State Health Improvement Plan (NH SHIP) and the NH Environmental Public Health Tracking (EPHT) surveillance data on environmental hazards, exposures, and associated health effects. Users may access data using interactive dashboards. Data in WISDOM is compiled from the following sources:

- Behavioral Risk Factor Surveillance Survey 2005-2016
- NH Hospital Discharge Data (In-State) 2000-2009; 2012-2016
- NH Hospital Discharge Data (Out-of-State) 2000-2009; 2012-2016
- Birth Conditions 2003-2010
- Air Quality (PM 2.5 and Ozone) 1999-2014
- National Survey on Drug Use and Health (NSDUH) 2003-2015
- NH Population (Claritas) 2005-2017
- Occupational Health Data (years vary based on dataset)
- PFC blood test results 2015-2016 (varies based on location)
- NH State Cancer Registry 2000-2015 maintained through the Geisel School of Medicine at Dartmouth-Hitchcock Medical Center
- NH Vital Records (Birth/Death Certificates) 2000-2016
- Pediatric Nutrition Surveillance System (PedNSS) 2007-2013
- Third Grade Survey 2009, 2014
- Youth Risk Behavior Surveillance System 2007-2017

ii. *LIMS system, DHHS Division of Public Health, Public Health Laboratories*
The LIMS system is the internal data system of DHHS's Public Health Laboratories, which is used to store data accumulated in the course of a miscellany of programs. The Public Health Laboratories have been involved in testing for water quality in conjunction with DES's MTBE investigations, arsenic and uranium in conjunction with DHHS's Biomonitoring Program, and DHHS's lead poisoning surveillance.For details on the release of data held by DHHS to the general public and to public health researchers, consult the Division of Public Health Services.

iii. *The Environmental Monitoring Database*
The Department of Environmental Services Environmental Monitoring Database holds data collected through permitting, investigation and monitoring activities of the divisions of air resources, water resources and waste management. Data is collected through permitting activities and data monitoring required by state law, rules, and relevant federal statutes such as the Clean Air and Clean Water Acts. The public facing portal to the Environmental Monitoring Database is the website OneStop, maintained by the Department.

c) Identifying outcomes of interest

Diseases and conditions linked to environmental exposures and associated environmental toxins recognized by NIEHS are summarized in Table 1. This table was removed from the NIEHS website during the last two years.

In addition, the Agency for Toxic Substances and Disease Registry (ATSDR) recognizes the following outcomes associated with PFAS exposure: increased cholesterol, changes in liver enzymes, low birth weight, decreased vaccine response, increased risk of high blood pressure or pre-eclampsia in pregnant women, and increased risk of kidney and testicular cancer. See ATSDR Website for additional information: https://www.atsdr.cdc.gov/pfas/health-effects/index.html.

The data subcommittee initiated compiling a NH-centered environmental exposures and associated toxins database. The committee is refining the database and is attempting to identify student volunteers to help along with members of the data subcommittee.

Table 1. NIEHS Summary of Disease or Condition and Environmental Toxin

Disease or Condition	Subtype Diagnosis	Environmental Toxin(s)
Asthma	Asthma	Air pollution, ozone, fine particulates, allergens
Autism	n/a	Air pollution,
Autoimmune diseases (i.e., Lupus)	Diabetes Lupus Multiple sclerosis Rheumatoid Arthritis Celiac disease	Solvents Smoking Silica Mercury
Cancer	Breast cancer Endometrium Kidney Colon Lung Esophagus	Acrylamide (fried food) Arisotolochic acids (herbals) Tobacco Obesity Pesticides Solvents Silica Dioxins PAHs Arsenic Beryllium
Lung disease	COPD	Tobacco Allergens Air pollution Asbestos
Obesity (Obesogens)		Tobacco Tribuytlin Pesticides PCBs Phthalates Flame retardants
Parkinson's disease		Pesticides DDT
Reproductive Health		Lead Mercury

2. Reporting
    a) Reviewing existing reports
        i. Existing reports were shared through presentations and in some cases provided as links to both NH DES and NH DHHS Websites. When the 2020 Cancer Burden Report is released, this will be something we want to review as a Commission. When the Biomonitoring TrACE Summary Report is release, this will also be something we want to review as a Commission.

    b) Generating new reports that summarize findings
        i. This sub-aim is related to monitoring and surveillance above. As the Commission identifies specific exposures and outcomes of interest,

there is an opportunity to develop recommendations focused on routine surveillance and reporting. In addition, as the NH Health WISDOM Data Portal is undergoing a major upgrade and transition to a new platform, there may be an additional opportunity to develop recommendations related to what data and information are tracked and reported on the Data Portal. Lastly, as DPHS moves forward with the State Health Assessment and State Health Improvement Plan with input from the SHA/SHIP Council, there is likely opportunity to develop recommendations to inform future priorities.

3. Communicating
    a) With the establishment of the ATSDR APPLETREE Program in NH, there is an emerging opportunity to engage NHDES and NHDHHS in community engagement and outreach and education related to environmental health. We should continue to explore this opportunity. One goal of this program is to establish an environmental health concern investigation protocol that will provide an opportunity for concerned citizens and communities to engage with the Agencies through a formalized process. This program will also provide a conduit for the sharing of information back out to the public and key stakeholders such as healthcare and childcare providers.

4. Capacity Building
    a) No specific activities were completed in this category. It remains a priority area for future work.

VII. Data Subcommittee Uncompleted Tasks

Going forward, the data subcommittee will develop recommendations related to the following core topics: Surveillance, Reporting, Communications, and Capacity Building

VIII. Data Subcommittee Recommendations

Community engagement needs to include an iterative feedback loop to gather and address Community Concerns. It is important for environmentally contaminated communities to be well-informed and have a seat at the table when decisions are/will be made that impact them. Beyond the duty to educate and inform NH citizens about the environmental contamination that may also impact public health, is another that is equally important to consider. It is important that communities impacted by environmental contamination be able to count on the direct responsiveness of state environmental and public health agencies to collective citizen concerns and needs. Ongoing and mutual conversation and responsiveness between local and state government and NH citizens is key.

It is also essential that we engage healthcare providers in this work. It is a priority to engage this group in outreach and education efforts such as PFAS Provider Education. This priority crosses over to the Education Subgroup.

Suggestions for Future Presentations:

- DHHS Enterprise Business Intelligence (EBI) (completed)
- DHHS Birth Defects Registry (completed)
- DHHS Biomonitoring TrACE Study (completed)
- DES Statewide Well Water Project (Mike Wimsatt)
- DOE Presentation on special needs education in NH.
- Air quality in schools.
- Lead in drinking water in schools.

IX. Data Subcommittee Legislative Recommendations

Review resource bill previously submitted by Senator Sherman.

References

ATSDR, *What are the health effects of PFAS?* https://www.atsdr.cdc.gov/pfas/health-effects/index.html.

NIEHS, Environmental Health Topics:
https://www.niehs.nih.gov/health/topics/agents/index.cfm

Nicole W. PFOA and cancer in a highly exposed community: new findings from the C8 science panel. *Environ Health Perspect*. 2013;121(11-12):A340. doi:10.1289/ehp.121-A340.

APPENDIX IV:

Education Subcommittee Report

Commission to Study Environmentally-Triggered Chronic Illness

In the past session of the legislature 2019, HB1538 came before the House Committee on Health, Human Services and Elderly Affairs. That bill was entitled 'Creating a commission to develop and implement environmental education, outreach, and training programs and initiatives for qualified health care professionals relative to environmental toxins and health'. It called for the creation of a commission on education regarding environmental risk for health professionals.

After due deliberation, the Committee on Health, Human Services and Elderly Affairs voted 'Interim Study' for the bill with the consideration that the purpose of the bill fell within the purview of the currently existing Commission to Study Environmentally-Triggered Chronic Illness. The committee therefore instructed one of the sponsors of HR1538 to present its recommendation to the Commission for action. In response to discussion at a meeting of the Commission, the Chairman, Senator Sherman, appointed a sub-committee to consider the intent of HR1538 and to make a recommendation for action.

The sub-committee met on Tuesday, November 17, 2020 via electronic media. At its meeting, the sub-committee considered that there are several separable elements to the goal of facilitating environmental education for the state of New Hampshire. There are two major dimensions to mitigation of risk: A public health dimension and a clinical dimension. While the charge to this sub-committee is directed specifically toward the clinical dimension, it should be noted that New Hampshire has considerable resources in its Department of Health and Human Services and its Department of Environmental Services. These latter departments have the potential to serve the objectives of environmental education, outreach, and training programs and initiatives for qualified health care professionals relative to environmental toxins and health.
To this end, we may consider the role of these two departments in generating assessments of environmental risk which can then inform health care professionals in clinical practice.

The public health perspective encourages us to not only identify environmental risks state-wide, but to specify how risks vary by geographical region of the state, demographics, and personal exposures. Thus, for example, we have data on ground-water arsenic, PFAS contamination, mercury in lakes and ponds, seasonal blooms of cyanobacter, etc. Thus, it is possible to construct risk-paradigms for different regions of the state and different groups within those regions.

The clinical perspective directs us to assess the means by which health care professionals can access the data generated from public health agencies. With this data, health care professionals can then tailor history and physical to determine the exposure risks of

patients. They can then integrate these findings into their interventions in preventing environmentally determined illness and/or treating it.

The challenge for the Commission is to design and recommend programs to implement the distribution of risk information to health care professionals and to train those professionals on the use of this information in clinical practice.

To this end, the sub-committee recommends that DHHS and DES identify the top environmental risk factors in the state. They may then construct risk profiles by region of the state, risk profiles for specific demographic groups, and/or risk profiles for other identifiable groups such as fishermen, hunters, mushroom foragers, etc. These profiles can then be distributed to public health officers throughout the state.

The next task is to convey these profiles to health care professionals so that they can be included in histories, physicals, and treatment of patients. While it is inexpensive to send such information by e-mail or post, generating this newly packaged information calls for a new awareness by health care professionals and subtle changes in clinical practice. To this end, the sub-committee recommends that hospitals be encouraged to conduct in-service education on the use of these risk profiles. Further, the sub-committee recommends that professional associations in the state conduct training for appropriate practitioners, and that these hospitals and associations invite public health professionals to present the risk profiles while responsible professionals determine the appropriate clinical implications.

The sub-committee recommends that DHHS and DES appoint appropriate bodies to begin the process of constructing environmental risk profiles and these profiles be shared with public health officers, professional associations and hospitals for distribution to health care professionals.

The sub-committee further observes that the implementation of a program to identify environmental risk and to educate health care professionals in these risks and to then assess clinical risk to patients offers an additional opportunity. The sub-committee recommends the establishment of a state-wide registry of environmental risk associated complaints. Such a registry would then become a dynamic, moving tally of risks. Rather than relying on static protocols to identify risks, a registry would catalog reports from clinicians of suspected environmental assaults. These data, reported by health professionals, would then be monitored and analyzed by DHHS. In this way, DHHS would be better able to observe emerging threats.

It was the sense of the sub-committee that environmental risks from PCBs. PPBs. PFAS and other chemical contaminants pose a long-term and an immediate risk to the health of NH citizens. Moreover, the spread of vector-borne diseases, in particular ticks and mosquitoes represent immanent threats to the public health. The sub-committee applauded the efforts of Senator Shaheen in locating funds through the Appletree project and routing the through the

American Medical Association. The sub-committee further notes the efforts of the attorney general in entering suit against Monsanto for PCB and PPB contamination.

The Subcommittee on Education met on Friday, March 12, 2021 at 1 pm via a virtual link.

Present at the meeting [virtually] were:

Margaret DiTullio, Representatives Messmer, Murphy, Woods and Salloway. Technical support was offered by Jennifer Horgan.

The meeting was called to order by the Chair, Representative Jeffrey Salloway at 1:08 pm. In lieu of a roll call, individual members were asked to identify themselves and to note their location and if they were alone.

The Chair pointed out that the existing draft of the report to the full Committee had been seen by all attendees. Discussion followed on suggested changes to the document as distributed.

Recommended changes were:

Mention of PFAS, PPBs,PPBs, vector borne diseases. Further it was recommended that mention be made of the efforts of Senator Shaheen to secure funds under the Appletree program and to route them through the AMA. Finally, it was recommended to include mention of the current NH suit against Monsanto regarding PCBs and PPBs.

The Chair will make the suggested changes and will distribute a final draft to the members of the sub-committee prior to the meeting of the full Committee next week.

Meeting adjourned at 1:25.