Maryland
DEPARTMENT OF HEALTH

Larry Hogan, Governor · Boyd K. Rutherford, Lt. Governor · Robert R. Neall, Secretary

March 16, 2020

The Honorable Delores G. Kelley, Chair
Senate Finance Committee
3 East, Miller Senate Office Building
Annapolis, Maryland 21401

Re: **Senate Bill 1053 – Baltimore County – Behavioral Health – Hub and Spoke Pilot Program – Letter of Information**

Dear Chair Kelley and Committee Members:

The Maryland Department of Health (Department) respectfully requests that the Committee consider the attached report pursuant to Section 2 of House Bill 922, Chapter 211 of the Acts of 2018, the Hub and Spoke Model Report.

If you have any questions, please contact Director of Governmental Affairs Webster Ye at (410) 260-3190 or webster.ye@maryland.gov.

Sincerely,

Robert R. Neall
Secretary

Maryland
DEPARTMENT OF HEALTH
Larry Hogan, Governor · Boyd K. Rutherford, Lt. Governor · Robert R. Neall, Secretary

February 24, 2020

Hon. Delores G. Kelley, Chair
Senate Finance Committee
3 East Miller Senate Office Building
Annapolis, MD 21401

Hon. Shane E. Pendergrass, Chair
House Health and Government Operations Committee
241 House Office Building
Annapolis, MD 21401

Hon. Antonio Hayes, Senate Chair
Joint Committee on Behavioral Health and Opioid Use Disorders
222 James Senate Office Building
Annapolis, MD 21401

Hon. Kirill Reznik, House Chair
Joint Committee on Behavioral Health and Opioid Use Disorders
427 House Office Building
Annapolis, MD 21401

Re: Section 2 of House Bill 922 (2018), Chapter 211 of the Acts of 2018 — Hub and Spoke Model

Dear Chairs Kelley, Pendergrass, Hayes, and Reznik:

Pursuant to Section 2 of House Bill 922, Chapter 211 of the Acts of 2018, the Maryland Department of Health submits the attached Hub and Spoke Model Report on the feasibility of establishing a Hub and Spoke model program in Maryland, the development of a proposed model for the State, and a determination of the cost of the model.

If you have any questions regarding this report, please contact me or my Deputy Secretary of Operations Gregg Todd at (410) 767–4557 or webster.ye@maryland.gov.

Sincerely,

Robert R. Neall
Secretary

Report on the Hub and Spoke Model for Opioid Use Disorder Treatment

Submitted by the Maryland Department of Health

Section 2 of House Bill 922, Chapter 211 of the Laws of Maryland of 2018

Table of Contents

I. Executive Summary

Section 2 of Chapter 211 of the 2018 Laws of Maryland directs the Maryland Secretary of Health to produce a report examining the feasibility of establishing a Hub and Spoke model program in the State, develop a proposed model for the State, and determine the cost of the proposed model. In general, a Hub and Spoke model for opioid use disorder (OUD) treatment utilizes the expertise of specialty addiction treatment providers (Hubs) to support community-based buprenorphine or naltrexone prescribers (Spokes). A similar program on a different model has been pioneered in Vermont, and California is beginning to operationalize a version of this model.

In response to Chapter 211, the Maryland Behavioral Health Administration (BHA) convened a Hub and Spoke workgroup comprised of staff and stakeholders with expertise regarding OUD treatment and service systems.

The overarching goal was to design a Hub and Spoke model for Maryland that would provide support to prescribers of medications for OUD in office-based settings to meet the additional medical and clinical service needs of their patients. It is important to note that a sustainable source of funding for this model has not been identified nor current funding allocated.

Should a Hub and Spoke model be attempted in Maryland, it needs to be sufficiently comprehensive to meet the unique needs of the target population, avoid duplication of existing services, utilize best practices, and complement the existing treatment infrastructure in Maryland. The existing Maryland system is comprised of licensed substance use disorder treatment providers who deliver assessment, counseling, Food and Drug Administration (FDA)-approved medications for OUD, and drug testing services. The proposed model would also build on Maryland's cadre of Drug Addiction Treatment Act (DATA) waived prescribers who are able to treat patients with OUD with buprenorphine-containing medications.

The recommended model identifies the essential functions of Hubs, Spokes, and Care Coordination services needed to ensure prescriber and patient support. It includes provider recruitment and training activities to promote geographically diverse participation as well as an assessment plan of the model. In addition to agreeing to the terms and conditions of participating in this model, the following additional components are necessary for the model:

- Hubs
    - Must be able to provide treatment with buprenorphine and naltrexone, and be able to provide or refer to a methadone medication provider
    - Must be able to refer for and receive results of serology testing for hepatitis C and HIV
    - Must be able to provide phone consultation about patient care to Spoke staff
- Spokes
    - Must be able to facilitate drug testing for patients
    - Must be able to provide counseling for medication and OUD-related medical issues
- Care Coordination
    - Care Coordination staff will be responsible for assisting with the transfer of patients between Hubs and Spokes when it is deemed clinically appropriate
- Awareness and Education
    - Hub and Spoke staff will be provided with regular educational opportunities related to OUD treatment

II. Introduction and Background

In 2018, the Maryland General Assembly passed House Bill 922,[1] which directed the Maryland Department of Health to produce a report examining the feasibility of establishing a Hub and Spoke program in the State, including proposing a model for the State and estimating the cost of the model.

As background context for a Hub and Spoke model, the rise in opioid-related deaths has led to an increase in both federal and state efforts to ensure that individuals with OUD receive effective treatment, specifically treatment including Medications for Opioid Use Disorder (MOUD). With specific training and a waiver from the Drug Enforcement Administration (DEA), the U.S. government permits physicians, physician assistants, and nurse practitioners to prescribe buprenorphine, an FDA-approved medication, to treat OUD. Waived physicians may treat up to 275 patients with buprenorphine at any one time, and waived physician assistants and nurse practitioners can treat up to 100 patients. However, many potential prescribers do not take advantage of this opportunity. Some of the reasons that providers do not prescribe buprenorphine for OUD (or prescribe only for a small number of patients) are that they perceive patients with OUD as difficult to treat and do not think they are capable of providing adequate care to patients with this illness.[2] Consequently, the number of prescribers is currently limited, resulting in inadequate treatment access for patients who need OUD treatment.

One method of expanding access to OUD treatment is the Hub and Spoke model.[3] Based on the success of the model implementation in Vermont, several other states have implemented their own Hub and Spoke models.[4] Implementations have shown outcomes such as an increase in the number of patients receiving medication assisted treatment,[5] an increase in DATA-waived prescribers at Spokes, and an increase in patients treated with buprenorphine or naltrexone at

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[1] Maryland House Bill 922, Maryland Department of Health—"Pill Mill" Tip Line and Overdose Report, online at http://mgaleg.maryland.gov/2018RS/Chapters_noln/CH_211_hb0922t.pdf (all Internet materials as last visited on April 18, 2019).

[2] Andraka-Christou and Capone, A qualitative study comparing physician-reported barriers to treating addiction using buprenorphine and extended-release naltrexone in U.S. office-based practices, International Journal of Drug Policy, 54:9–17 (2018).

[3] Rawson, Vermont Hub-and-Spoke Model of Care for Opioid Use Disorders: An Evaluation, submitted December 2017, online at http://www.healthvermont.gov/sites/default/files/documents/pdf/ADAP_Hub_and_Spoke_Evaluation_2017_1.pdf. (Vermont Hub-and-Spoke); Casper and Folland, Essential Elements of Vermont's "Hub and Spoke" Health Homes Model, submitted by the American Association for the Treatment of Opioid Dependence in partial fulfillment of contract #HHSP233201400268P (February 22, 2016), online at http://www.aatod.org/wp-content/uploads/2016/10/whitepaper-1.doc.

[4] Montana State Department of Public Health and Human Services, SAMHSA award number TI080243–01, online at https://www.samhsa.gov/grants/awards/2017/TI-17-014; State of Washington, Department of Social and Health Services, Behavioral Health Administration, Division of Behavioral Health and Recovery, Washington State Targeted Response (WA-STR) Hub and Spoke Project (5/10/2017), online at https://www.dshs.wa.gov/sites/default/files/BHSIA/dbh/Substance%20Use/Hub_and_Spoke_LOI.pdf; Alaska - Project Summary, TI–17–014: State Targeted Response to the Opioid Crisis Grants (Opioid STR) Individual Grant Awards, online at https://www.samhsa.gov/sites/default/files/grants/pdf/other/ti-17-014-opioid-str-abstracts.pdf; Nevada Department of Health and Human Services, Division of Public and Behavioral Health, Funding Opportunity Announcement—Opioid State Targeted Response (STR): Integrated Opioid Treatment and Recovery Center (IORTC), online at http://dpbh.nv.gov/uploadedFiles/dpbh.nv.gov/content/Programs/ClinicalSAPTA/dta/Grants/Nevada_STR_IOTRC_Part_%20I_Released_092217.pdf.

[5] Vermont Hub-and-Spoke.

Spokes.[6] Patient outcomes such as decreases in illicit drug use, emergency room visits, overdoses, illegal activity, and involvement in the criminal justice system have also been reported in Vermont, along with an increase in life satisfaction.[7] Although not specific to the Hub and Spoke model, an analysis of Medicaid data compared individuals with OUD receiving MOUD to those who were not. The results showed that those receiving MOUD had significantly less inpatient and outpatient expenditures, emergency room utilization, and specialty expenditures.[8]

III. Model Development

Information was collected about Hub and Spoke models and their implementation. Sources included literature reviews, Internet searches, and consultation with agencies and individuals both within Maryland and outside of Maryland who were implementing or considering implementing a Hub and Spoke model. A more detailed description of these sources may be found in Appendix B.

The workgroup convened by BHA met nine times in 2018 and 2019. During each meeting, information regarding Hub and Spoke model characteristics and implementation was presented (see Appendix B for methodology and Appendix C for a summary of other states' evaluations of their Hub and Spoke models). The workgroup discussed the potential functions and characteristics of Hubs, Spokes, and Care Coordination services, weighing the pros and cons of each function, and assessing the feasibility for including such functions in a Maryland-specific model. Decisions to include or exclude any given model characteristic were determined within the context of Maryland laws and regulations, best clinical practices, desired outcomes, existing services and infrastructure, potential costs, and logistical feasibility. Once a proposed model was developed, the workgroup developed a cost estimate for implementing the selected model in Maryland.

The proposed model relies heavily on those elements of OUD treatment currently required by the Code of Maryland Regulations (COMAR) and accreditation standards. For example, specialty addiction treatment providers are already required to provide clinical services such as assessment, drug testing, and counseling. By building upon these existing required services, the Maryland-specific model layers on only minimal additional components designed specifically for the Hub and Spoke model. Again, it is important to note that a sustainable source of funding for this model has not been identified nor current funding allocated.

IV. Proposed Maryland Hub and Spoke Model

This section of the report describes the proposed Hub and Spoke model for Maryland. Model elements include:

A. Hub functions and characteristics
B. Spoke functions and characteristics

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[6] Darlfler et al., California Hub and Spoke Medication Assisted Treatment Expansion Program: Year 1 Evaluation Report (October 2018), online at http://www.uclaisap.org/ca-hubandspoke/docs/reports/CA%20HSS-Evaluation-Annual%20Report-October%202018.pdf (California Hub and Spoke).

[7] Vermont Hub-and-Spoke.

[8] Mohlman et al., Impact of Medication-Assisted Treatment for Opioid Addiction on Medicaid Expenditures and Health Services Utilization Rates in Vermont, Journal of Substance Abuse Treatment 67, 9–14 (2016) (Mohlman).

C. Care Coordination functions and characteristics
D. Provider recruitment and education

The work group determined that the proposed model's implementation plan requires a three-year pilot program which would include up to four Hubs and twenty Spokes. Effort to establish Hub and Spoke models in both urban and rural areas of the State is necessary, as well as including Opioid Treatment Programs (OTPs) and non-OTP specialty addiction treatment programs as Hubs. The pilot program would use a Continuous Quality Improvement (CQI) process so that "lessons learned" can improve the model on an on-going basis. Funding would be required in the first two years implementing the pilot program, with less activities requiring additional funding as the pilot matures. Funded activities during the third year of the pilot program would include completion of the evaluation activities, ongoing Care Coordination, and state planning for further dissemination. It is important to note that a sustainable source of funding for this model has not been identified nor current funding allocated.

The recommended requirements for each model element, and the reasoning behind them, are presented below.

A. Hub Functions and Characteristics

All Hubs

Providers that qualify to be Hubs must be licensed by the State of Maryland to provide substance use disorder treatment. COMAR 10.63 requires that programs be accredited by a national accreditation body and adhere to accreditation standards of care. The following are recommended requirements in addition to those required by licensure and accreditation for a Hub to participate in the Maryland Hub and Spoke model.

- **Receive orientation, training, and on-going education about the Hub and Spoke model**
    - For the model to work effectively, each Hub needs to understand the overall goals of the model and the expectations placed upon it when it participates.
- **Agree to fast track patients referred by Spokes**
    - Hubs will be expected to accept patients being transferred from a Spoke within three business days of the transfer decision being made.
- **Refer patients to—and receive documented results for—serology testing for hepatitis C and HIV**
    - Due to the prevalence of drug use and other high risk behaviors in the OUD patient population, it is important that Hubs be able to refer patients for both hepatitis C and HIV testing and receive the results so that appropriate interventions can be provided.
- **Provide consultation services to Spokes**
    - One of the most important aspects of the Hub and Spoke model is the ability for a Spoke to contact a Hub for patient consultation. This is an important support mechanism for Spokes, who have less expertise in treating OUD than do the Hubs. In some situations, being able to consult with a Hub potentially eliminates the need to transfer a patient from the Spoke to a Hub, thereby keeping the patient

at a lower, less restrictive level of care. This also then keeps space available at the Hub to provide a higher level of care to patients who need it.
    - Consultation provided by a Hub to a Spoke could be about a patient that the Hub has treated and transferred to the Spoke, or it could be about a patient who has never been treated by the Hub.

OTP Hubs

In addition to the above requirements, OTPs must be able to dispense and administer methadone, buprenorphine, and naltrexone.

Non-OTP Hubs

In some areas of the State there may not be any or enough OTPs to serve as Hubs. In these instances, intensive outpatient programs (IOP) or outpatient programs (OP) may serve as Hubs. Non-OTP Hubs must:

- **Receive training and education about the practice of providing methadone**
    - OTPs by definition are the sole provider of methadone treatment. For those Hubs that are not OTPs and cannot provide methadone, it is still important that they understand the benefits of making the full range of OUD treatments available with the appropriate clinical and medical services.
- **Be able to prescribe, observe the administration of or dispense buprenorphine, and administer naltrexone**

B. Spoke Functions and Characteristics

Practices that qualify to be Spokes must already have at least one practitioner with their DATA waiver to prescribe buprenorphine. The following are additional requirements for a Spoke to participate in the Maryland Hub and Spoke model.

- **Provide prescriber-delivered counseling for medication and medical issues related to OUD**
    - This requirement refers to counseling patients about their OUD medications and about medical issues related to their OUD.
- **Be able to facilitate drug testing**[9]
    - Actual testing of the sample can be conducted at an external laboratory.
- **Receive orientation, training, and on-going education about the Hub and Spoke model and about the full range of medications to treat OUD**
    - For the model to work effectively, each Spoke practitioner needs to understand the overall goals of the model and the expectations placed upon them when participating in this model.
    - Because Spoke entities may transfer patients to the Hub, it is important that they understand the benefits of making the full range of OUD treatments available with the appropriate clinical and medical services.
- **Be located in Maryland**

[9] American Society of Addiction Medicine or Treatment Improvement Protocol 63.

- While there may be potential Spokes in other states bordering Maryland that are close to a Maryland Hub, and therefore convenient for a patient to attend, Spoke prescribers must practice in Maryland.

The workgroup discussed the idea of requiring a Spoke to be within a certain distance of a Hub, in part because of the potential transportation burden for a patient who needed to be transferred from a Spoke to a Hub. In the end, the workgroup decided a "minimum distance" requirement would be too restrictive, and patients in rural areas of Maryland would end up being underserved. Even if a Spoke is distant from a Hub, the Spoke would still benefit from being able to consult with a Hub. Further, it is expected that Hubs and Spokes will be able to take advantage of advances in telemedicine to allow Spokes and their patients easier access to Hub expertise.

C. Care Coordination Functions and Characteristics

For the proposed Hub and Spoke model, Care Coordination should be defined as ensuring that patients are transferred between Hubs and Spokes when deemed clinically appropriate. Care Coordination staff must ensure the patient is successfully transferred between a Hub and Spoke. This responsibility includes setting up the initial appointment, verifying that the patient kept the appointment, and identifying barriers if the patient did not keep their appointment. Care Coordination staff must keep all parties informed of the status of the patient during this transition process as well as make sure the appropriate patient consents are in place to communicate between Hub and Spoke.

Should the proposed model be adopted, Local Behavioral Health Authorities (LBHAs) in the jurisdictions that contain Hubs will require funding for Care Coordination services. While LBHAs may acquire services in different ways, the expectation is that the LBHAs will incorporate any dedicated Care Coordination funding to their current mechanism for providing existing Care Coordination services. It is important to note that a sustainable source of funding for this model has not been identified nor current funding allocated.

The proposed model includes guidance documents that would be developed to assist in transferring patients between Hubs and Spokes. These guidance documents would outline a recommended process and set of supporting documentation to be used when considering transferring patients. The guidance documents would also provide information about criteria for determining when it is appropriate for a patient to be transferred. This can be a complicated decision, as different Spokes have different levels of expertise in OUD treatment-related services, and thus a patient who is able to be treated successfully in one Spoke may not be able to be treated successfully in another. Although the final decisions about patient care are the responsibility of the treatment provider, there are assessment tools available to assist in patient placement, such as the Treatment Need Questionnaire© (TNQ) and Office Based Opioid Treatment (OBOT) Stability Index.[10]

D. Provider Recruitment and Education

[10] California Hub and Spoke; Brooklyn, The Vermont Hub and Spoke Model, online at http://www.uclaisap.org/ca-hubandspoke/docs/activities/Hub-and-Spoke-California-brooklyn-July-25-FINAL.pptx.

The proposed model includes provider education activities designed to engage providers, recruit them into the pilot program, and provide continuing education as they implement the model.

- **Model Awareness**
  - Hubs and Spokes will be made aware of the model and its goals, with the primary purpose of recruiting them for participation. To align with existing priorities and efforts, waived prescribers enrolled with the Maryland Primary Care Program (MDPCP) and Maryland Addiction Consultation Service (MACS) will be targeted for inclusion as Spokes.
  - A brief (one- to two-page) summary of the model will be used to convey key information about the model and participation expectations.

- **Model Orientation**
  - The orientation will provide detailed information about the Hub and Spoke model and OUD treatment, with the goal of giving providers enough information to decide if they want to participate in the model. This orientation is targeted at providers who have expressed potential interest in participating in the pilot program.
  - Presentations (1–2 hours) will be used to convey information regarding the Maryland Hub and Spoke Model.
  - This orientation could be provided in a variety of formats including in-person meetings, live webinars, or recorded presentations available online.

- **Provider Registration**
  - Model awareness and orientation activities will be used to educate providers about the Maryland Hub and Spoke Model pilot program.
  - Interested providers will complete an application process; each provider organization must demonstrate that it meets the requirements of being a Hub or Spoke in the Maryland Model.
  - Once a provider has been approved and enrolled into the pilot program, staff members will be trained in model processes.

- **Model Training**
  - Training will be provided on the processes and procedures of providing treatment within the model. This training will target providers who have been enrolled into the pilot program. A Hub and Spoke training manual will be created.
  - Training activities will include training sessions (several hours are anticipated) and will examine various aspects of the Maryland Hub and Spoke Model Manual in detail.
  - Training could be provided in a variety of formats including in-person meetings, live webinars, or recorded presentations available online.

- **Learning Collaborative (ongoing)**
  - Learning Collaborative meetings will provide didactic education and peer-to-peer consultation to pilot program providers on a variety of topics. Topics will be chosen relative to participant training needs, areas identified through the evaluation, and provider interest. This step is targeted at providers who are participating in the pilot program.

- The Learning Collaborative will also provide Hubs, Spokes, and care coordinators with the opportunity to network and develop strong working relationships.
- The Learning Collaborative would be implemented through webinars and in-person meetings. Regional meetings may be used to decrease travel burden for participants.

V. Evaluation of the Proposed Model

The evaluation subcommittee outlined an evaluation plan that will enable the State to:

- Meet administrative goals and anticipated reporting requirements
- Identify strategies, barriers, and lessons learned during implementation
- Share best and promising practices
- Assess effectiveness of the model
- Estimate model costs
- Create future opportunities to study effectiveness and cost of the Hub and Spoke model

The evaluation activities would occur during all three years of the pilot program. The third year of evaluation activities beyond the two-year implementation period for Hubs and Spokes will enable the data collection, analysis, and reporting of longer-term patient outcomes. It will also allow for observations regarding implementation success and sustainability once initial implementation has ceased, which is critical to understanding future model dissemination. Key evaluation activities for each year are provided below:

- **Year 1 Evaluation Activities**
  - Refine and finalize the Project Evaluation Plan which will include both process and outcome evaluation components
  - Participate in the development of a continuous quality improvement process
  - Develop reporting templates and processes
  - Obtain stakeholder input on evaluation
  - Participate in project meetings, engage in problem solving
  - Collect basic reporting data (number of clients served, cost of services, etc.)
  - Evaluate Learning Collaborative activities
  - Begin design of Effectiveness and Cost Avoidance Evaluations

- **Year 2 Evaluation Activities**
  - Continue to obtain stakeholder input on evaluation
  - Continue to participate in project meetings, engage in problem solving
  - Continue to collect basic reporting data (number of clients served, cost of services, etc.)
  - Provide data to a continuous quality improvement process, expecting to include:
    - Basic reporting data
    - Administrative Services Organization (ASO) data
    - Number of registered Spokes
    - Number of patient transfers
    - Number of Hub-Spoke consultations
  - Continue evaluation of Learning Collaborative activities
  - Finalize protocol for Effectiveness and Cost Avoidance Evaluations (includes using data listed above)
  - Plan and begin to implement Key Informant and Stakeholder interviews

- **Year 3 Evaluation Activities**
  - Complete Key Informant and Stakeholder interviews, with a focus on identifying strategies for continued sustainability
  - Complete Effectiveness Evaluation on outcomes such as successful transfer from Spoke to Hub and Hub to Spoke
  - Complete Cost Avoidance Evaluation to determine potential cost savings by using this service model
  - Identify future funding opportunities to research model effectiveness and cost, collaborating with community partners to do so

VI. Cost Analysis

Along with reviewing the Hub and Spoke model elements, the workgroup discussed the estimated costs for implementing a pilot program with 4 Hubs and 20 Spokes over three years. It is important to note that a sustainable source of funding for this model has not been identified nor current funding allocated. The estimated costs are as follows:

Model Element	Element Description	Year 1	Year 2	Year 3	Total
Hub	Each of the four Hubs would require $49,722 each of the first two years of the pilot program. Funds would be intended for the Hubs to cover costs for staff attending trainings, providing consultation to Spoke staff (approximately 520 Hub staff hours each year per Hub), data reporting, patient transfers to and from Spokes, and ancillary patient care costs.	$198,888	$198,888	n/a	**$397,776**
Spoke	Each of the 20 Spokes would require $42,312 each of the first two years of the pilot program. Funds would be intended for Spokes to cover costs for staff attending trainings, obtaining consultation from Hubs, data reporting, patient transfers to and from Hubs, and ancillary patient care costs.	$846,240	$846,240	n/a	**$1,692,480**
Care Coordination	Each year the funding equivalent of two full-time staff (2 FTE × $75,000 = $150,000) would be required across the LBHAs of jurisdictions containing Hubs to facilitate patient transfers between Hubs and Spokes and to assist with data collection for the evaluation.	$150,000	$150,000	$150,000	**$450,000**
Evaluation	In Year 1, a Project Evaluation Plan will be finalized. In Year 2, basic reporting data will be collected and analyzed, Stakeholder interviews will be conducted, and Effectiveness and Cost Avoidance Evaluations will be finalized. In Year 3, data will continue to be collected and analyzed, additional Stakeholder interviews will be conducted, Effectiveness and Cost Avoidance Evaluations will be conducted, and an evaluation report(s) will be prepared. Funds would be awarded to a separate entity to perform these services.	$50,000	$125,000	$425,000	**$600,000**

Learning Collaboratives	In each of the first two years BHA would conduct four to five Learning Collaborative meetings with approximately 120 Hub and Spoke staff (physicians, nurses, peers, etc.) attending each meeting. Funds would be intended to rent locations and costs associated with training.	$14,000	$14,000	n/a	**$28,000**
BHA Staff	Each of the three years of the pilot program would require a full-time BHA staff person to develop provider recruitment and education materials, monitor Hubs and Spokes, and oversee the project's evaluation activities.	$80,000	$80,000	$80,000	**$240,000**
	TOTAL 3-YEAR ESTIMATED COST				**$3,408,256**

VII. Conclusions

In response to House Bill 922, BHA convened a stakeholder workgroup with expertise in OUD treatment. As required by House Bill 922, the workgroup developed a proposed Hub and Spoke model for Maryland should it be implemented.

A three-year pilot program may be necessary for the implementation of a Maryland-specific Hub and Spoke model. Detailed recommendations regarding the services, capabilities, and characteristics of Hubs and Spokes are provided. In the proposed model, Care Coordination services provided by LBHAs would include facilitating successful and appropriate patient transfers between Hubs and Spokes. Provider recruitment would include creating and using awareness and orientation materials. Educational opportunities, such as provider training and a Learning Collaborative, would also be included to ensure that the model is implemented with high quality. Evaluation information collected through a continuous quality improvement process will guide model implementation and inform future model dissemination efforts.

The cost estimate for implementation of the proposed Hub and Spoke model through a pilot program would be $3,408,256 over three years. It is important to note that a sustainable source of funding for this model has not been identified nor current funding allocated.

Appendix A
Workgroup Membership

- Maryland BHA
  - Marian Bland
  - Susan Bradley
  - Laura Burns-Heffner
  - Frank Dyson
  - Debbie Green
  - Yngvild Olsen
  - Barrington Page
  - Kathleen Rebbert-Franklin (Chair)
  - Mary Viggiani
  - Brendan Welsh
  - James Yoe

- Maryland Local Jurisdiction
  - Lori Brewster
  - Travis Gayles

- Maryland Medicaid Administration
  - Rebecca Frechard
  - Nicholas Shearin
  - Amy Woodrum

- OUD Treatment Providers
  - Howard Ashkin
  - Lynda Hill
  - Doris Mason
  - Jessica Peirce
  - Amber Rippion
  - Kenneth Stoller

- University of Maryland Baltimore Systems Evaluation Center
  - Geoffrey Ott
  - Timothy Santoni

Appendix B
Methods Used for Gathering Information on Hub and Spoke Models

Information was collected about the implementation of the Hub and Spoke model through literature reviews, Internet searches, and communication with individuals in Maryland as well as those in other states who were familiar with the model. Little information was found through the literature review, however, general Internet searches uncovered information about the model, with national, state, and university websites providing information. Within Maryland, several jurisdictions were interested in the model, and some providers were already implementing a version of it. Telephone interviews were conducted with the following states, jurisdictional health departments, and providers to collect additional information:

1. Vermont
2. California
3. Nevada
4. Washington
5. West Virginia
6. Maryland
    - Anne Arundel County
    - Baltimore City
    - Behavioral Health Systems Baltimore
    - Frederick County, Maryland
    - Johns Hopkins Broadway Center for Addiction
    - Institutes for Behavior Resources, Inc. / Recovery Enhanced by Access to Comprehensive Healthcare (IBR/REACH)

The additional Hub and Spoke information, documents, and advice that was obtained from all of the above sources was added to the previously collected information. A PowerPoint presentation was created summarizing the material for each workgroup meeting to inform discussion that resulted in the creation of the model.

Appendix C
Hub and Spoke Model Evaluations

Both Vermont and California have published evaluations of their Hub and Spoke models.[11]

A. Vermont Evaluation

The Vermont Hub and Spoke initiative began in January of 2013. At the time of the evaluation Vermont, which has about a tenth of the population of Maryland, had 8 Hubs and 77 Spokes. The published evaluation of the Vermont model included the following results:[12]

- From January 2014 to October 2017, the number of patients in Hubs increased from ~1,750 to ~3,300.
- From September 2013 to June 2017, the number of patients in Spokes increased from ~1,750 to ~2,600.
- After entering treatment, patients treated in the Hub and Spoke model reported:
    - Less illicit opioid use
    - Fewer visits to the emergency room
    - Fewer overdoses
    - Less illegal activity and involvement in the criminal justice system
    - Increased life satisfaction of life
- "Patients treated in the spokes felt they had a closer, more collaborative treatment relationship with their treatment staff than did participants treated in the hubs."

Prior to implementing the Hub and Spoke model, Vermont also conducted an analysis of Medicaid claims of over 8,000 beneficiaries comparing patients with OUD receiving MOUD to those receiving non-MOUD treatment. Using data from 2008 through 2013, this analysis found that the group receiving MOUD[13] showed:

- Slightly less annual total expenditures
- Significantly less annual total expenditures, when not counting opioid treatment expenditures
- Significantly less annual inpatient and outpatient expenditures
- Significantly less annual specialty expenditures
    - This includes transportation, home and community-based services, case management, dental, residential treatment, day treatment, mental health facilities, and school-based services
- Significantly less emergency room utilization (rate per person)
- Significantly more primary care utilization (rate per person)

[11] See Vermont Hub-and-Spoke; See California Hub and Spoke.
[12] See Vermont Hub-and-Spoke.
[13] See Mohlman.

B. California Evaluation

The California Hub and Spoke model is much newer, and the published evaluation reflects the first year of its implementation. As of July 2018, California had 18 Hubs and 129 Spokes. In the first year of the model's implementation:[14]

- The number of DATA-waived prescribers at Spokes increased from 159 to 256
- The percentage of DATA-waived prescribers at Spokes with patients increased from 54.7% to 60.2%
- The number of patients initiating treatment per month with buprenorphine increased from 144 to 341
- The number of patients initiating treatment per month with naltrexone increased from 11 to 56
- The overall patient census in Spokes increased from 4,152 to 5,010

While the California evaluation noted a few challenges that need to be addressed going forward, such as increasing fidelity and making training efforts more tailored to specific types of Spokes and providers, the program has been successful in expanding access to medication assisted treatment (MAT), including by increasing the number of waived providers.

[14] See California Hub and Spoke.