



JACKSON COUNTY HEALTH DEPARTMENT

CHILD LEAD EXPOSURE ELIMINATION INNOVATION GRANT

PREVENTING LEAD EXPOSURE IN PREGNANT WOMEN

FY 2018 – 05/01/2018 – 08/31/2019

GOALS FOR TODAY

- Describe the purpose for the Lead Project for Pregnant Women
- Review the Objective and Activities using the main guidelines below
 - Development (Initial and training)
 - Build
 - Identify
 - Testing
 - Activate
- Identify members of committees
- Review outcomes
- What did and did not work
- Next Steps



PURPOSE

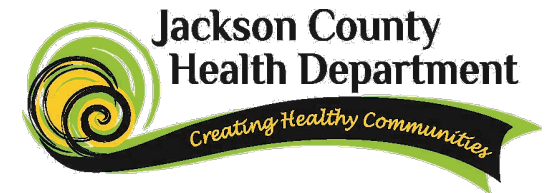
- Establish a consent based referral system to Jackson County Health Department(JCHD) through electronic medical record system in use by multiple health care systems in community partners as well as JCHD.
- Focus on pregnant women to determine their exposure to lead by assessing their risk and testing their blood for levels of blood lead.
- Provide case management including education, home visits, and resources for the reduction of environmental hazards for any pregnant women with elevated lead level.

ULTIMATE GOAL – Prevent in-utero exposure of the developing fetus to dangerous lead levels via the maternal route.



PARTNERSHIPS

- MDHHS – Funding Source of Child Lead Exposure Elimination Innovations Grant
- MPHI – Serves as Grant Administration site
- Jackson Community Medical Records (JCMR) Team – Collaboration with electronic medical records tool development
- Jackson Health Network (JHN) – Functioning as a Clinically Integrated Network (CIN), JHN is designed to continuously improve outcomes and reduce costs, and is dependent upon building a strong culture of committed physicians.
- Jackson County Health Department (JCHD)- Local Health Department and grant recipient
- EPIC – Electronic Medical Record utilized by local health system, FQHC and local health department (JCHD)



OBJECTIVES AND ACTIVITIES

Objective

Convene a JCHD, Jackson Health Network (JHN), and Jackson Community Medical Record (JCMR) team to steer and coordinate the development of the best practice alert (BPA) consent-referral process and lead risk assessment template within the electronic medical record.



OBJECTIVES AND ACTIVITIES

Identify

- Members of the Project Steering Committee with representatives from JCHD, JCMR and JHN leadership.
- EMR Build Team members to work on technical and cross network issues
- Physician Champion for project Steering Committee
- Relevant ICD 10 Diagnosis code if applicable
- Lead Risk Assessment tools that could be used or modified for pregnant women



OBJECTIVES AND ACTIVITIES

Development (initial)

- Best Practice Advisory for pregnant women
- Schedule of Project Steering Committee quarterly meetings
- Mapping process for pregnant women tied to lead risk assessment and referral process



OBJECTIVES AND ACTIVITIES

Build

- Mockup BPA and Lead Risk assessment template for presentation and review by Project Steering Committee
- Referral order in EMR
- Patient Consent within Referral
- Record of patient consent into after visit summary



OBJECTIVES AND ACTIVITIES

Build cont.

- Review, refine, and approve BPA and template for lead risk assessment based on comments/suggestions from project steering committee members
- Map the desired lead risk assessment, testing, and referral process
- Determine where to place patient consent for referral to JCHD
- Link documents such as Lead Risk Assessment to client
- Load resources to ensure they print correctly



OBJECTIVES AND ACTIVITIES

Testing

- Define tasks necessary to develop and place best practice alert and lead risk assessment in EMR
- Test BPA, template and referral order in training environment and analyze results
- Revise, review, and launch
- Clarify where charting of notes by RN on lead case management visits can occur in EMR



OBJECTIVES AND ACTIVITIES

Develop (tied to training)

- Develop screen shots of BPA and template. (JCMR, JHN)
 - 2 Versions (Original and Revised Training materials)
- Develop training and education content for use by JHN/JCMR staff with OB/GYN and Family Medicine Practices using the EMR.
- Develop and / or modify work flow processes and train and educate staff (RNs) who will receive referrals.



OBJECTIVES AND ACTIVITIES

Training

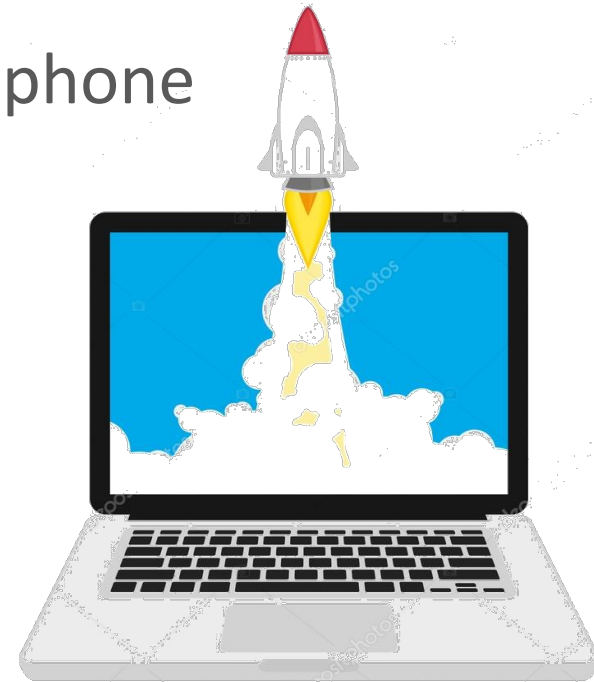
- Train and educate OB/GYN and Family Medicine Practices on the use of the EMR.
- Identify referral points in JCHD / and or set up EMR pool within JCHD practice for referrals.
- Train and educate OB/GYN and Family Medicine Practices on New Workflow process for pregnant women.



OBJECTIVES AND ACTIVITIES

Activation

- After testing and consent of the build team and project steering committee, activate the consent-referral process within the EMR.
- Process referrals and contact pregnant women by mail, phone and text message.
- Engage with pregnant women to complete lead risk assessment template.
- Offer lead testing through JCHD or JHN health care provider.



OBJECTIVES AND ACTIVITIES

Activation cont'd

- Monitor lead results entered in the EMR system.
- Outreach to pregnant women to offer lead case management home visits with venous lead test levels of 5 $\mu\text{g}/\text{dL}$ or higher.
- Encourage and or assist pregnant women in completing an application to the MDHHS Lead Safe Home Program if criteria appear to be met.
- If City of Jackson resident, refer to the City of Jackson Lead Program.
- Document lead testing results and lead case management discharge summary in electronic medical record.

2019 STEERING COMMITTEE MEMBERS

- Angela Aldrich, JCHD
- Ann Sloan, JCHD
- Brian Hemgesberg, HFHS
- Cheryl Cooper, JCHD
- Karyn Lemieux, HFHS
- Kathleen Ladwig, HFHS
- Laurie Tarpley, HFHS, JHN
- Laurie Lewis, HFHS, JCMR
- Maury Page, HFHS
- Melissa Roe, JCHD,
- Micheal Foust, HFHS, JCHD, MD
- Michelle White, JCHD
- Molly Fleming, HFHS
- Pamela Wyatt-Elkins, HFHS
- Rashmi Travis, HFHS, JCHD, HO (Current)
- Richard Thoune, HFHS, JCHD, HO (Former)
- Rhonda Rudolph, JCHD
- Sara Benedetto, CFH



STEERING COMMITTEE MEETING DATES



- 8/3/2018 – Review lead assessment and approved it for uploading.
- 12/7/18 – First review of mock referral system and discussion of BPA firing
- 12/18/2018 View of BPA
- 2/14/2019 –View of system with BPA and request to have it only fire once and Discussion of uploading resources
- 5/8/2019 – Final approval of Electronic referral mechanism with all systems working including resources. Change of name decided for resources.
- 8/28/2019 – Wrap up and discussion of the ending of the BPA, letter from JCHD Health Officer to Physicians and how to move forward on referrals

NOTE: The Steering Committee also served as the demo committee for reviewing the flow of the referral mechanism for the Build Committee as well as approving wording and resource materials to be incorporated into the Electronic Referral System.

BUILD TEAM MEMBERS

- Brian Hemgesberg, Sr. Ambulatory Application Analyst
- Karyn Lemieux, Manager, Community Connect
- Kathleen Ladwig, Manager, JCMR
- Theresa Roe, Director, JCMR
- Tina Means, Programmer II, HFHS
- Laurie Lewis, Implementation and Adoption Specialist, /EPIC Credentialed Ambulatory Trainer
JCMR



BUILD TEAM MEETING DATES:

- June 19th
- September 4th
- October
- December 7th
- December 18th
- January 11th

RESOURCES USED TO DEVELOP LEAD ASSESSMENT INCLUDED IN EPIC

- Three different but similar resources were used to build a tool for assessing lead risk for pregnant women.
 - Illinois Department of Public Health,
 - Minnesota Department of Health, and
 - American College of Obstetrics and Gynecology (ACOG).
- The Health Officer cross referenced all three by pulling content into one combined tool and presented to the Project Steering Committee. After some minor small edits to the questionnaire it was submitted to the build team to enter into EPIC EMR as a template.
- The decision was made that the questionnaire would be completed by the Health Department Lead Nurses through the referral process, avoiding an additional burden on already busy practices.

Lead Exposure Risk Screening Questionnaire for Pregnant Women

Testing is only recommended for women who are at risk. If a woman answers “yes” or “don’t know” to ANY of these questions, she is at risk for lead exposure and should have a blood lead test. Women should also be tested if they have any concerns about lead not addressed by this questionnaire.

	Response		
1. Do you live in a house built before 1978?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
2. Do you live in a house built before 1978 with ongoing renovations that generate dust from sanding and scraping?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
3. Do you or others in your household have an occupation, hobby or activity which may expose you or them to lead?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
4. Do you live near a point source for lead – examples include lead mines, smelters or battery recycling plants (even if the establishment is closed.)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
5. Have you ever been told that you had an elevated blood lead level?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
6. Do you live with someone who has an elevated blood lead level?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
7. Do you crave or have you eaten a non-food item during this pregnancy? (Sometimes pregnant women have the urge to eat things, which are not food, such as clay, soil, pottery, plaster or paint chips.)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
8. Do you have or have you had any oral piercings? (Oral piercing jewelry may contain lead which can cause lead poisoning.)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
9. Do you use any imported cosmetics, traditional folk or herbal remedies, or food products?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
10. Do you use handmade or imported pottery, painted china, leaded glass or crystal or other products that were made in another country?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
11. Have you consumed lead-contaminated drinking water?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
12. Do you have any bullets in your body from past gunshot wounds?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know

LEAD RISK ASSESSMENT INCLUDED ON EPIC

Testing is only recommended for women who are at risk. If a woman answers “yes” or “don’t know” to ANY of these questions, she is at risk for lead exposure and should have a blood lead test. Women should also be tested if they have any concerns about lead not addressed by this questionnaire.

13. Do you eat venison or other game that was harvested with lead bullets?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
14. During the last 12 months, did you move to Michigan from another country or from a major metropolitan area?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
15. Were you born, or have you spent any time outside of the United States? (Many identified lead-poisoned pregnant women are foreign born. There are still countries where leaded gasoline is still being used or where industrial emissions are not well controlled.)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
16. Are you eligible for or enrolled in the Women’s, Infants and Children (WIC) Program or Medicaid?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know

16 Questions

BEST PRACTICE ADVISORY WHICH FIRES WHEN A CURRENTLY PREGNANT STATUS IS MARKED IN THE VITAL SIGNS AREA

1. In the Rooming Tab, Vital Signs, OB/Gyn Status, Currently pregnant, click **Yes** and click on **Accept**. This will fire the BPA in the Plan Tab. Continue with Rooming workflow.

The screenshot displays a medical software interface. On the left, a patient record form is visible with fields for 'Taken on' (1/4/2011 09:40 AM), 'OP', 'Weight', 'Height', 'HC', 'Resp', 'EpO2', 'PP', 'Pulse', 'Temp', 'Source', 'Tobacco Use', 'Never Assessed', 'Ready to quit?', 'Counseling given?', 'Mark as Reviewed', and 'OB/Gyn Status'. The 'Currently pregnant?' field is highlighted with a red box. Overlaid on the right is a 'Category Select' dialog box with a search bar, a list of categories (No, Unknown, Yes), and 'Accept' and 'Cancel' buttons. The 'Yes' category is selected in the list, and the 'Accept' button is also highlighted with a red box.

BEST PRACTICE ADVISORY

2. In the Plan tab, Best Practice Advisories, click **Accept**.

The screenshot shows a software interface for Best Practice Advisories. At the top, there is a header bar with a dropdown menu labeled "BestPractice Advisories" and a link "Expand/Collapse All" with a refresh icon. Below this is a yellow advisory card with the title "Advise all pregnant women to be screened for lead risk". The card contains a warning icon and the text: "If the patient requests to be screened, please send the referral below to the Jackson County Health Department." To the right of the text is a button labeled "Accept (1)". Below the advisory card, there are two buttons: "Open SmartSet" and "Do Not Open". To the right of these buttons is the text "Referral to Jackson County Health Department" followed by a "Preview" link. At the bottom of the advisory card, there is another button labeled "Accept (1)", which is highlighted with a red rectangular border.

REFERRAL TO JACKSON COUNTY HEALTH DEPT OCCURS IN SMART SETS ACTIVITY

3. Click on the SmartSets activity. **Check** the box for Referral to Jackson County Health Department. Click **Open SmartSets**.

The screenshot shows the SmartSets interface. At the top, there is a green header with a menu icon and the text 'SmartSets'. Below this is a search bar with the placeholder text 'Search for new SmartSet' and a green '+ Add' button. Underneath the search bar is a section titled 'Suggestions' with an upward arrow icon. The first suggestion is 'Referral to Jackson County Health Department', which has a blue checkmark in a box to its left. Below the suggestions is a section titled 'Favorites' with an upward arrow icon. The first favorite is 'Erroneous Encounter' with an unchecked checkbox. At the bottom right of the interface, there are two buttons: 'Open SmartSets' with a green checkmark icon and 'Clear Selection' with a red X icon. Both buttons are highlighted with a red rectangular box.

REFERRAL TO JACKSON COUNTY HEALTH DEPT CONTINUES WITH SELECTING LEAD SCREENING

4. Click the Next button to complete the referral.

 Remove

 Pend

 **Next**

Referral to Jackson County Health Department  Personalize 

▼ Referral/Order

▼ Referral for Lead Screening

Referral to Jackson County Health Department for lead screening

Referral to Jackson County Health Department

 **P** Please note: To meet the Meaningful Use measure for Transitions of Care, you must indicate a provider in the "To provider" field to send a Summary of Care Document., Routine, To - FOUST, MICHAEL A, Continuity of Care

5. In the Comment box, **F2** to complete. Click **Accept**.

✓ Referral to Jackson County Health Department ⓘ

P

✓ Accept ✗ Cancel

Process Inst.: Please note: To meet the Meaningful Use measure for Transitions of Care, you must indicate a provider in the "To provider" field to send a Summary of Care Document.

Class: Transition c ⓘ **Transition of Care**

Referral: To prov spec: ⓘ

To provider: FOUST, MICHAEL A [H115081 ⓘ ⓘ]

Reason: Continuity of Care ⓘ Specialty Services Required Patient Preference **Continuity of Care**

Priority: Routine ⓘ **Routine** Urgent Elective

Referral Priority: Routine ⓘ **Routine** Urgent Elective

ⓘ Comments: ⓘ abc ⓘ ⓘ ⓘ + Insert SmartText ⓘ ⓘ ⓘ ⓘ

Has this patient provided consent for this referral? {YES/NO:21636}

6. Associate the diagnosis.

Referral to Jackson County Health Department  Personalize 

▼ Referral/Order

▼ Referral for Lead Screening

Referral to Jackson County Health Department for lead screening


Referral to Jackson County Health Department



P

Please note: To meet the Meaningful Use measure for Transitions of Care, you must indicate a provider in the "To provider" field to send a Summary of Care Document., Routine, To - FOUST, MICHAEL A, Continuity of Care

▼ Additional SmartSet Orders

 Search

You can search for an order by typing in the header of this section.

 Associate

 Edit Multiple

 Patient Estimate

 Providers

 Remove

 Pend



Sign

Associate Diagnoses



Test, Rachel

Add diagnosis



From problems



Less than 8 weeks gestation of pregnancy



Referral to Jackson County Health Depart...





All Clear Auto

✓ Accept

✗ Cancel

7. Pend or Sign the order as per protocol.

Referral to Jackson County Health Department  Personalize 

▼ Referral/Order


▼ Referral for Lead Screening

Referral to Jackson County Health Department for lead screening

Referral to Jackson County Health Department

 **P** Please note: To meet the Meaningful Use measure for Transitions of Care, you must indicate a provider in the "To provider" field to send a Summary of Care Document., Routine, To - FOUST, MICHAEL A, Continuity of Care

▼ Additional SmartSet Orders

 Search

You can search for an order by typing in the header of this section.

 Associate  Edit Multiple  Patient Estimate  Providers

 Remove

 Pend

 Sign

8. Referral will appear in Outpatient Procedures Ordered This Visit.

Outpatient Procedures Ordered This Visit

 [Referral to Jackson County Health Department](#) 

1/4/2019

FOUST, MICHAEL A

Dose, Route, Frequency: Please note: To meet the Meaningful Use measure for Transitions of Care, you must indicate a provider in the "To provider" field to send a Summary of Care Document., Routine, To - FOUST, MICHAEL A, Continuity of Care

Change/Modify 0 Orders

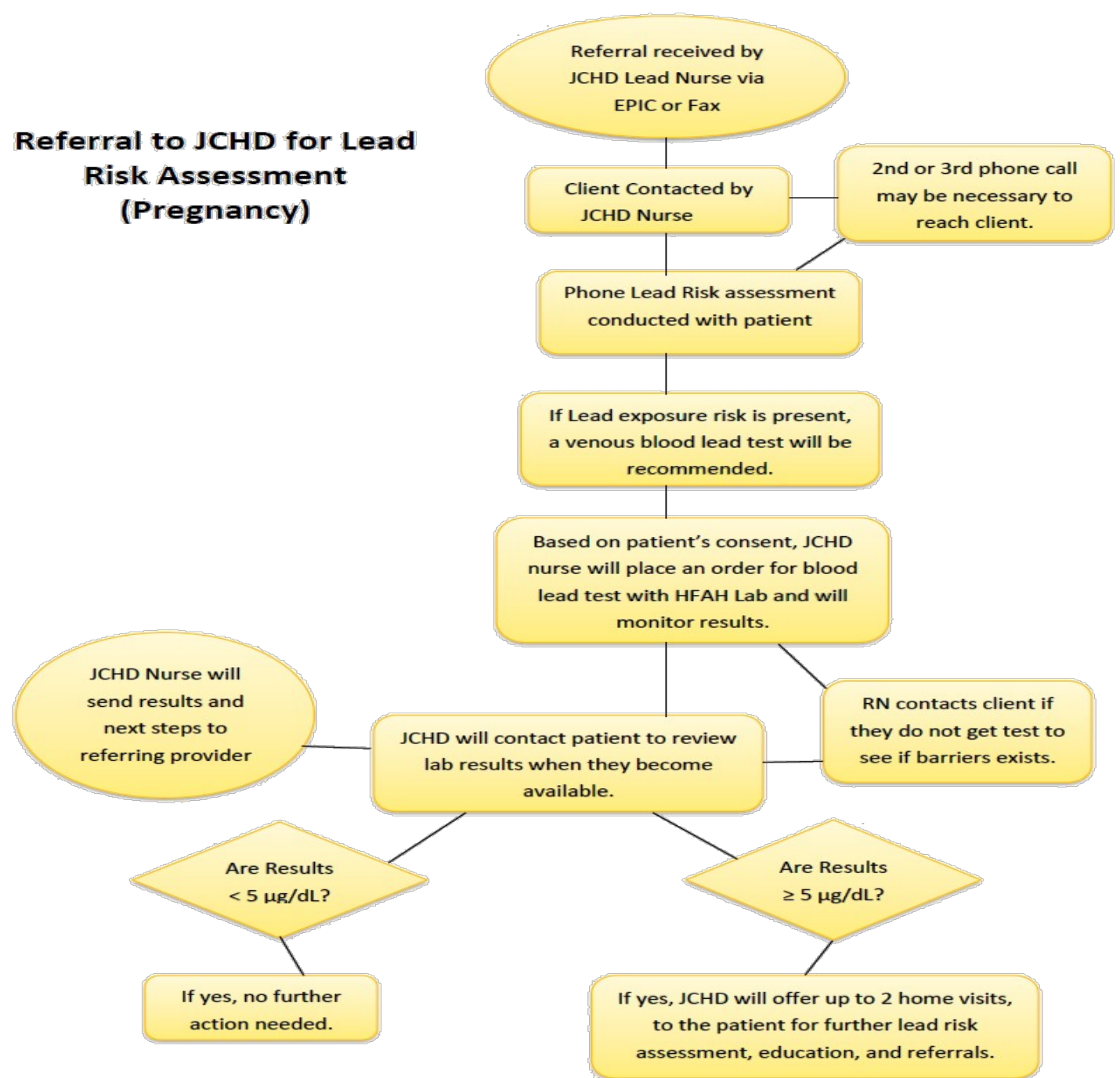
Reorder 0 Orders

Discontinue 0 Orders

Points to remember regarding Lead Risk Assessment

- Flowchart begins with the receipt of the referral to JCHD (Dr. Michael Foust)
- Client is contacted several times in order to allow the nurse to conduct the lead risk assessment and to explain how the lead blood test works.
- The client receives follow-up regarding their lead test results.
- The client is not charged for the test if their insurance does not pay, the grant funding would be expected to pay for the cost.

Referral to JCHD for Lead Risk Assessment (Pregnancy)



OUTCOMES MEASURED

- Comparison of number of pregnant woman referrals to JCHD before and after activation of the consent-referral process In looking at total referrals we had 104 but that also includes referrals from our WIC and Sexual Health Clinic. If we only look at the OB/GYN referrals there are 39 of 104 which is 37.5% of the total referrals. We received zero prior to initiation of the consent-referral process.
- Number and percent of referred women who agree to engage in the risk factor assessment process 37 women agreed to engage in the lead risk factor assessment of the 103 referred – 35.6 %
- Number and percent of referred women who engage in one or more lead case management home visits Zero home visits conducted as no high lead levels were identified.
- Follow up lead test results show a decrease in lead level below 5 ug/dL at discharge No elevated lead levels were identified therefore no followup lead testing was needed.

OUTCOMES CONTINUED

- Pregnant women are receiving very early intervention for lead exposure, within the first trimester of pregnancy. **These stats were not available.**
- Increase in pregnant woman referrals and enrollment in other public health services such as MIHP and WIC. **Most of the referrals for the program came from the WIC clinic and no increase in referrals to other public health programs occurred.**
- Successful project is proposed for expansion HFHS wide to facilitate referrals to all local health departments in the SE MI area within the service area of HFHS. **This could easily be expanded HFHS wide to refer to local health departments in their respective areas now that the tool is built in the system. It would only take working with the team to modify or include certain resources for uploading and referring sources. Since we received some of our referrals by Fax, it could even work that way as well. There are many ways that this type of system could work. Ideally the EMR system is the preferred method.**

REFERRALS RECEIVED (MEASURE OF SUCCESS)

Pregnant Women Referrals	Gates / Nichols	Pasturiza Includes dual referral from WIC /Pastoriza	Scott	WIC	SHD Clinic	Blood Work ordered based on assessment	Number Receiving blood work	# < 5 µg/dL or ≥ 5 µg/dL	Number eligible for but declined blood work
Total Number / August 104	15	23	1	53	12	37	13	13	18 4 Not Eligible according to Risk Assessment

WHAT WORKED

- Creation of a Best Practice Advisory/referral mechanism in EPIC to increase awareness of potential lead exposure in pregnant women. The referral system worked as expected in EPIC for those physicians who had access to EPIC
- Multi Organization Collaboration on project to increase awareness of lead poisoning in pregnant women. The Center for Family Health even evaluated the benefit of adding lead testing to the panel of blood work already being completed for pregnant women. Their final decision was to talk to the patient and refer for blood testing if needed.
- The access to the Lead Assessment Tool worked great and is now available for the physicians monitoring their patients to view including the results of any lead testing conducted because the testing was conducted at an EPIC facility.
- No high lead results ($\geq 5 \mu\text{g} / \text{dL}$) were identified
- Some OB offices without access to EPIC were willing to fax over clients information.

WHAT DIDN'T WORK

- Some physicians were not set up on EPIC and could not use the BPA.
- Attempts to try to use another Messaging system did not work although numerous attempts to work with OB offices were made. (possibly not a high priority with the OB/GYN office as they kept reporting computer glitches when called)
- When MA's asked if clients were interested in a referral, clients refused or declined services (as stated based on a discussion with OB/GYN Office Manager who stated their MA's were asking "all" pregnant women about the program)
- Clients were not good at going in for their blood tests after they were ordered.
- Clients declined blood tests after they qualified.
- Clients were hard to contact after referrals were received. – Average number of attempts to contact were one - three phone calls.

NEXT STEPS

- BPA referrals to JCHD Public Health Nurse will cease on Sept. 4, 2019 due to computer timeframe. Physicians were notified of grant ending on Aug 31, 2019.
- Lead Risk Assessment can be conducted in physician's office now that it is built into online systems.
- Lead Risk Assessments are also available in paper format. (can be printed from electronic system)
- If a pregnant woman is found to have lead poisoning risks, a physician can still order the venous lab testing.

NEXT STEPS CONTINUED

- A letter from the JCHD Health Officer was distributed to all OB/GYN doctors and their Office Managers to let them know the end of the program and to remind them to send eligible pregnant women to the Health Department for nutrition, education, and home case management services. (WIC and MIHP)
- WIC and MIHP both have questions on their intake forms that ask about lead and possible exposure.
- Lead Resource Packets geared to pregnant women will be distributed on a request basis by the Lead Poisoning Prevention Program Health Educator.



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ANY QUESTIONS