

EPIC® GUIDE

# PAROXYSMAL NOCTURNAL HEMOGLOBINURIA (PNH)

EHR GUIDE

## BEST PRACTICE ALERT (BPA) GUIDE

- Instructions to create a PNH BPA
- Additional BPA Criteria for Consideration
- Considerations for Implementation of EHR Updates

INSTRUCTIONS TO CREATE A PNH BPA

**Step 1: Create a new grouper record for diagnoses mapped to International Classification of Diseases (ICD) code D59.5**

- Open the **Grouper Editor** activity and create a new record
- In your new grouper, set the master file to **EDG** and the type to **ICD Codes**
- Use a Code Set of **ICD-10-CM** and enter an ICD Code of **D59.5**

The screenshot shows the 'Grouper Editor' interface. At the top, 'Master file:' is set to 'Diagnosis Master [EDG]' and 'Type:' is set to 'ICD Codes'. There are two checkboxes: 'Allow inactive record selection' and 'Hide from SlicerDicer', both of which are unchecked. Below this is a tabbed interface with 'General Info' selected. Under 'General Info', there is a table with the following data:

	Code Set	ICD Code	Code Label
1	ICD-10-CM	D59.5	Paroxysmal nocturnal hemoglobinuria (Marchiafava-Micheli)
2			

This image is intended for illustrative purposes only.

**Step 2: Create a new Criteria BPA record for a diagnosis of PNH**

- Open the BestPractice Advisory activity and create a new record with a type of **Criteria**
- In the record you just created, add a Criteria Type of **Diagnosis**
- Add the diagnosis grouper created in the last step and ctrl-click in the **Diagnosis Type** field to select an appropriate diagnosis type from the choices provided. **Problem List Diagnosis** may be the most appropriate diagnosis type as it is not encounter specific
- Mark the record as **Released** to make it available for use

**Step 3: Create a new Criteria BPA record for low hemoglobin lab value**

- Open the BestPractice Advisory activity and create a new record with a type of **Criteria**
- In the record you just created, add a Criteria Type of **Lab Components**
- Enter hemoglobin components using either a common name or the LRR ID of the component record. If you don't know these, your Beaker/Lab team should be able to provide them to you. It may be advantageous to use a common name over a component because common names are often shared among components, which allows multiple components to be checked with one line

**Note: If you want to check only the most recent value and can't use a single line to enter all the hemoglobin results, you can use a rule type Criteria record as an alternative (see end of this section for setup).**

- Set the Function on each line (if you have to, enter multiple lines for different components or common names) to **LESS THAN OR EQUAL TO** and set the **Additional Info** field to **7**. Set an appropriate lookback – the units should default to calendar days but can be changed if necessary

**INSTRUCTIONS TO CREATE A PNH BPA (continued)**

- If you entered multiple lines in the previous step, be sure to set the logic appropriately (most likely to OR logic)
- To check only the most recent result value with multiple different common names, set the Criteria record to use a rule instead of directly checking lab components
  - Create a new **Patient BPA Locator** rule
  - Add the **Last Lab Value** property to your rule
  - Add labs to check, using either Base or Common names or a lab component (LRR) grouper
  - Set an appropriate lookback period in days
  - Set the operator to = and use a range in the value field of **.01:7** or a similar range if you prefer a different level of precision. Don't use  $\leq 7$  here as null or missing values will evaluate to true
  - Link your rule to your Criteria record
- Mark your Criteria record as **Released**

# Property	Operator	Value
1 <a href="#">Patient</a> » ↻	=	.01:7
✎ <b>Last Lab Value</b>		
Base Names		
<input checked="" type="checkbox"/> Hb <input checked="" type="checkbox"/> Hgb		
Common Names		
Lab components Grouper		
LOINC Code Grouper		
LookBack Period		
365		
Start Date		
Unit		
Search Period Filter Rule		
Nth Result		
Exclude Comment Only Data?		
Value Filter Rules		
Unit Filtering		
Include Unsuccessful Attempts?		
No		

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INSTRUCTIONS TO CREATE A PNH BPA (continued)

**Step 4: Create a new BPA record with a type of Base**

- Link the two Criteria records you created in the Criteria section
- Set the Logic to **1 and 2**
- Restrict when this BPA appears by entering appropriate provider and encounter types in the **Include Encounter Restriction** table under Restrictions
  - Each line must be unique and evaluated using OR logic so, to restrict to Office Visit encounters and/or certain provider types, enter the value on each separate line
  - Starting on the first line, add the following provider types: **Physician, Physician Assistant, Nurse Practitioner, Resident, and Fellow** (change these per your needs or to meet customization at a particular site)
  - Add Office Visit as the Encounter Type to each line and **Hematology and Oncology** as the Department Specialty
  - It will only allow this BPA to appear to physicians, residents, fellows, and advanced practice providers who are seeing patients during an office visit in a Hematology/Oncology department

Restrictions							
Include Encounter Restriction							
Service Area	Location...	Location Grou...	Department Specialty	Department	Department Grou...	Encounter Type	Provider Type
1			Hematology and Oncology [86]			Office Visit [101]	Physician [1]
2			Hematology and Oncology [86]			Office Visit [101]	Physician Assistant [6]
3			Hematology and Oncology [86]			Office Visit [101]	Nurse Practitioner [9]
4			Hematology and Oncology [86]			Office Visit [101]	Resident [113]
5			Hematology and Oncology [86]			Office Visit [101]	Fellow [116]
6							

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- Set triggers to control when and where your alert will appear. **Open Patient Chart** will result in the BPA logic being evaluated when the chart is opened and appearing immediately upon chart opening if the requirements are met. This will be a pop-up style BPA that forces the user to interact with it before accessing the rest of the chart. A navigator style BPA can be used instead, where the BPA appears in a line in the navigator instead of in a separate window by using the **General BPA Section** trigger. **Header BPA Notifications** will result in the BPA appearing in the patient storyboard, which a provider must click to see in full. There are many more triggers that you can set to ensure more coverage, most of which use the pop-up style similar to Open Patient Chart
- If you want to include an action for providers to take when the BPA appears, add it to the Actions section. Actions include linking to certain activities, suggesting orders, and sending In-Basket messages, among others
- You can give providers a reason to decline/acknowledge that a BPA was considered. You can also require that an acknowledgment is documented and lock the BPA out from appearing again for a certain length of time during this process
- Configure the display of the BPA appropriately by using the text fields provider in the BPA or using a SmartLink
- When you're ready to test the BPA, check the **Released** box to activate it

INSTRUCTIONS TO CREATE A PNH BPA (continued)

**Step 5:** To prompt a physician to order when a patient hasn't had lactate dehydrogenase (LDH)/hemoglobin assessed in the last 6 months, create a copy of the base BPA from the last step and add a new Criteria record

- Create a copy of your Base BPA by using **Save As** from the BPA activity
- Create a new Criteria record with a type of Rule
- Create a new **Patient BPA Locator** rule and add the **Last Lab Date** property
- Add all appropriate Base or Common names or a grouper with all appropriate LRRs
- Set the lookback to 365 days (you don't have to look back that far, but don't set the lookback to anything less than ~184 days)
- Check that the date is at least 6 months old by using the less than operator and M-6 as the value
  - If a date is found in your lookback, the rule will return true if it is more than 6 months in the past. If no date is found, Epic evaluates null as less than any number
- This rule will evaluate true unless a value is found for one of the components included in the last 6 months
- Add the new criterion to your new base BPA and update the logic to **1 and 2 and 3**
- Optionally, add an action of **Single Order** and add an order for the appropriate lab order (complete blood cell count (CBC), basic metabolic panel (BMP), etc)
  - You will need to create a new preference list to do this with a type of BPA
  - In the Preference List Composer activity, create a new list with list type of **Procedures**, sub type of **BestPractice**, and order mode of **Outpatient**

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- Add a new Section to your list, then add a new item for each order you wish to add

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- Link the LPF as the single order action in your BPA
- You may also want to add the new Criteria record you created that checks for an order in the last 6 months to your first BPA to avoid both firing at the same time. To do this, invert the logic so it must be true for the BPA where a lab order is suggested and not true for a lab that has not been suggested

**ADDITIONAL BPA CRITERIA FOR CONSIDERATION****Patient Identification for EHR Instructions: Additional Criteria for Consideration**

Other factors can assist in the identification of patients who are sub-optimally treated with PNH. Below are some examples to consider.

One of Epic's reporting solutions, Reporting Workbench or SlicerDicer, may be used to identify patients with PNH. Consult your organization if administrative user rights are required to access the reporting solutions.

**Hemoglobin**

- Hemoglobin below <12 g/dL

**Flow**

- Red blood cell (RBC) clone size (changes >10%, excluding sub 10% range)
- White blood cell (WBC) clone size (changes >10%, excluding sub 10% range)

**Blood Biomarkers**

- Haptoglobin
- Lactate Dehydrogenase
- Absolute reticulocyte count (ARC)
- Mercury (Hg)
- Thrombosis (Budd-Chiari Syndrome (BDS) and cerebral)
- Bilirubin
- Complement C3-positive (C3+) RBCs – may get with flow
- Coombs test + C3 (should be negative) (direct antiglobulin test (DAT) + C3)

**Other Considerations**

- Treatment interruption or discontinuation (provider notification via In Basket)
- Patient received a transfusion
- Humanistic burden: patient-report outcomes (PRO) and health-related quality of life (HRQoL) measure (based on patient report Functional Assessment of Chronic Illness Therapy (FACIT) questionnaire)

**Clinical Decision Support (CDS) for Patients with PNH**

- Define the goal
- Define the patient population using criteria available in the EHR. Examples include:
  - Diagnosis
  - Lab Results
  - Encounter Types
- Build a multidisciplinary team. Examples include:
  - Executive Sponsor
  - Clinical Specialists
  - Clinical Pharmacists
  - Information Technology (IT) Analysts
  - Clinical Informaticists
- Conduct a baseline assessment, using patient identification tools in the EHR
- Implement the EHR intervention. Examples include using clinical decision support tools
- Measure success in an ongoing manner. Examples include using adoption or utilization of measure
- Scale the initiative. Examples include:
  - Broader patient population
  - Broader criteria
  - Different disease states
  - Additional clinics/systems

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