

# Role of New Prolonged Half-Life Clotting Factors in Hemophilia

*New clotting factors for dosing schedule flexibility*



NATIONAL HEMOPHILIA FOUNDATION

[www.hemophilia.org](http://www.hemophilia.org)

## Acknowledgements

This brochure was developed independently by an NHF working group. Original drafts and subsequent edits developed by Jennifer Klem, PhD. The National Hemophilia Foundation (NHF) would like to thank Regina Butler, RN; Roshni Kulkarni, MD; Craig Kessler, MD; Jerry Powell, MD; and Mark Skinner for their contributions in developing the content and reviewing the drafts of this publication.

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# Role of New Prolonged Half-Life Clotting Factors in Hemophilia

## What are Prolonged Half-Life (PHL) Clotting Factors?

These new clotting factors stay in your body's blood circulation longer than traditional clotting factors. That means you can infuse less often giving you more flexibility with your dosing schedule.

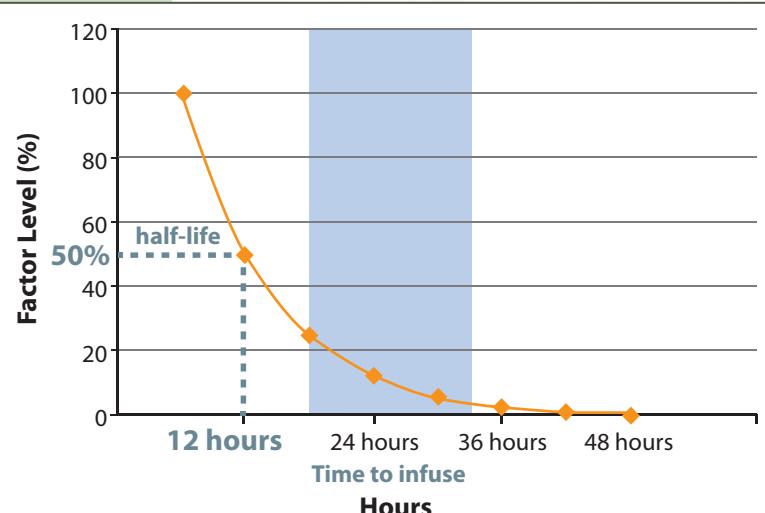
## What Is Half-Life?

Half-life is the time it takes for the activity level of your infused factor to drop by one half (50%). In most people, traditional clotting factor VIII (FVIII) has a half-life of 8-12 hours and factor IX (FIX) has a half-life of 18-34 hours. There is a range of half-lives because the clotting factor proteins are metabolized (broken down) differently in each person.

### Example: 12-hour half life

See how quickly your FVIII activity levels drop if the half-life is 12 hours, and you have infused to a FVIII activity level of 100%. After only 12 hours you will have an abnormally low FVIII activity level, increasing your risk of bleeding.

Time from infusion	Factor remaining
0 hours (Time of infusion)	100%
12 hours	50%
24 hours	25%
36 hours	12.5%
48 hours	6.3%
60 hours	3.1%
72 hours (3 days)	1.6%

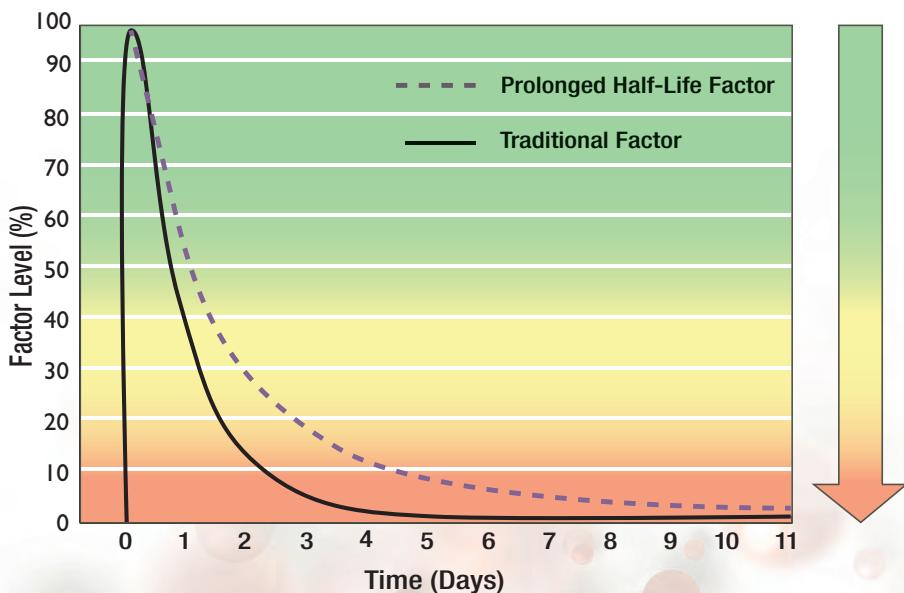


## How Are These New PHL Clotting Factors Different?

PHL factors stay in your body longer than traditional factors, meaning they keep your factor protein at a higher level for a longer period.

See below for a comparison of the half-life of traditional clotting factor protein with that of a PHL clotting factor.

Traditional clotting factor has only 10% remaining 2 days; in this example, the PHL factor takes nearly 5 days to reach that level.



## **What Does This Mean for Me?**

Using PHL factor concentrates means that you may be able to:

- ✓ Maintain clotting factor activity at desired levels with less frequent infusions.
- ✓ Be more flexible with the timing of your infusions.
- ✓ Maintain clotting factor activity levels appropriate for the intensity of your physical activities.
- ✓ Start and/or maintain prophylaxis regimens with a more convenient infusion schedule.

## **What Does This NOT Mean for Me?**

Using PHL factor concentrates DOES NOT mean that:

- ✗ You will not bleed with trauma or surgery.
- ✗ You can miss or delay administering your doses of clotting factor concentrates as part of your prophylaxis regimen.
- ✗ You can never develop a neutralizing antibody (inhibitor) against FVIII or FIX.
- ✗ You should switch from your current replacement clotting factor concentrate without serious discussion with your hemophilia treatment center (HTC) team.
- ✗ Your clotting factor activity level is going to be maintained at a constant level adequate for you to pursue all of your athletic activities without the chance of bleeding.
- ✗ You will necessarily save money for your annual clotting replacement regimen since you are dosing less frequently over prolonged intervals.

## **How Can My HTC Help Me Decide Which Clotting Factor To Choose?**

You and your HTC team should work together to make the best decisions for you regarding your hemophilia.

Your role is to describe to your HTC team the type of life you want to lead, based on your personal goals, such as:

- Succeeding in the career you have chosen
- Participating in activities required by your job and from family

Consult with your physician/HTC team regarding how to manage your own treatment in conjunction with your physical activity levels and lifestyle.

PHL clotting factors may allow you greater flexibility with your dosing, opening up even more ways to reach your personal goals and maintain improved adherence to your prophylaxis regimen.

PHL clotting factors may be used in all age groups. Fewer infusions per week and/or longer intervals between infusions with PHL products could translate into increased convenience both for you, the patient, and caregivers/parents, in the case of young children.



## Risk of Bleeding

The actual risk of bleeding is affected by several factors, as shown below:



The blue boxes illustrate things that are under your control.

Example: Strenuous physical activities need high factor levels.

The orange boxes illustrate things you have little control over.

Example: Arthritic pain

To reduce the risk of bleeding, you need to modify one of the things under your control – either increase your factor level (through infusion) or reduce your activity level (e.g., go for a walk rather than playing basketball). Physical activity is important to your well-being, but you should time your strenuous physical activity so that you participate when your risk of bleeds is lowest.

Two of the most important ways you can manage your hemophilia are: 1) infusing clotting factor and 2) coordinating your infusions with your planned physical activities. Decisions involved in this process include:

- Which clotting factor should you choose?
- What time of day should you infuse?
- How often should you infuse?



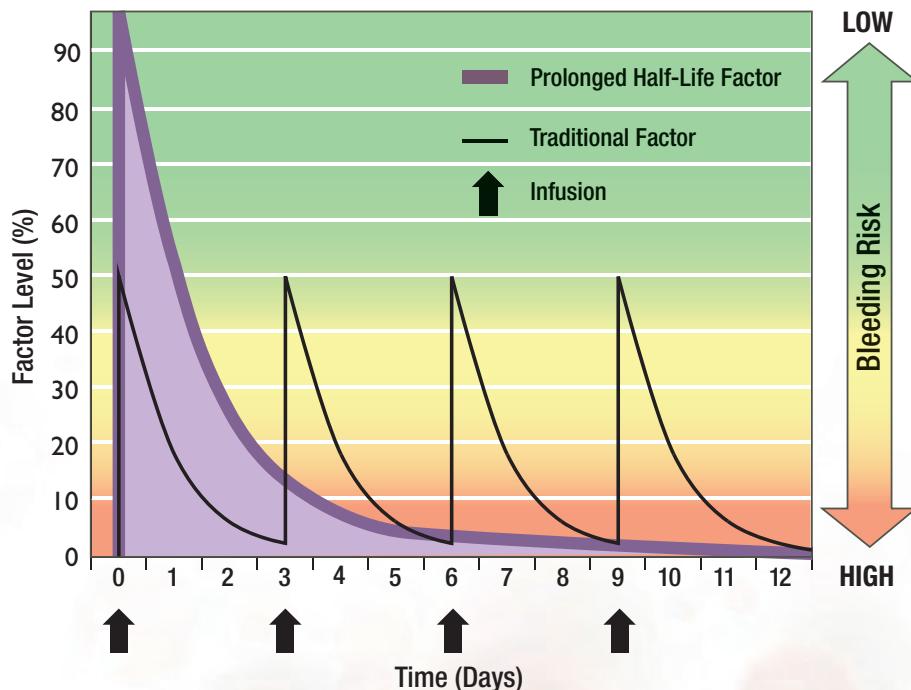
### Factor Levels Over Time: Traditional Factors vs. PHL Factors

The color coding on this figure illustrates the level of protection from bleeds your body has over time.



The thin black line shows the factor level of a patient on prophylaxis with traditional FIX infusions, whereas the thick purple line shows the same patient's factor level on prophylaxis with PHL FIX infusions. FVIII PHL factors have a less dramatic increase, but the patterns will be similar. Each individual has his own unique half-life, so your graph may look different.

Regardless of the exact pattern, your body cycles from periods of higher factor levels to periods of risk. How quickly this cycle occurs depends on the half-life of your clotting factor and how quickly your body uses this clotting factor.



In the green zone, the infused clotting factor is present at levels that are providing effective protection. It's safe to be physically active, like playing tennis or basketball.

In the yellow zone, you should use caution before starting a higher risk physical activity because your factor is providing limited protection.

In the red zone, you have little protection from bleeds.  
This is NOT the time for strenuous physical activity!

## **FAQs (Frequently Asked Questions)**

### **Are these new clotting factors safe?**

More than 500 subjects have been treated with PHL factors for longer than 1 year without significant adverse events. Visit the NHF website: [www.hemophilia.org](http://www.hemophilia.org) for up-to-date clinical trial information and updates.

### **Can I use these clotting factors in all situations?**

Yes, these PHL factors can be used for prophylaxis, acute bleeds and surgery.

### **Are these PHL factors as effective as my current clotting factor in stopping a bleed?**

Yes, clinical studies show that these clotting factors are just as effective in stopping/preventing bleeding as traditional clotting factors.

### **Should I switch to a PHL clotting factor?**

Each person with hemophilia is unique. Your factor choice is a personal decision. Discuss this with your HTC team. Things to consider include your age, severity of disorder, bleeding history, activity level, personal goals, desired lifestyle, insurance coverage, and patient and healthcare provider preference.

### **Preparing for your visit**

There are a number of questions to consider as you prepare for your visit. By sharing your answers to these questions with your HTC team, the staff can more fully appreciate your desired lifestyle and take the necessary steps to help you achieve your personal goals:

- What sort of physical activities do you want to do?
- How burdensome is infusing at your current schedule?
- For additional questions to consider, visit the NHF website:  
[www.hemophilia.org](http://www.hemophilia.org)

Your healthcare team may also want to perform a “test dose” study with the PHL concentrate in advance of initiating the PHL replacement therapy regimen. This helps determine the best dose for you to take, and how to tailor that dose to your lifestyle and activity level.



The National Hemophilia Foundation (NHF) is dedicated to finding better treatments and cures for inheritable bleeding disorders and to preventing the complications of these disorders through education, advocacy and research.



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