

# PHARMMAECONOMIC EVALUATION WITH AN ACTIVATED PROTHROMBIN COMPLEX CONCENTRATE (APCC) IN PATIENTS WITH HAEMOPHILIA AND INHIBITORS (PRO-FEIBA STUDY)



Alessandro Gringeri<sup>1</sup>, Cindy Leissinger<sup>2</sup>, Paolo A. Cortesi<sup>3</sup>, Hyejin Jo<sup>4</sup> and Lorenzo G. Mantovani<sup>5</sup> for the Pro-FEIBA Study Investigators



<sup>1</sup>Department of Medicine and Medical Specialities, Fondazione IRCCS Cà Granda and Università degli Studi di Milano, Milan, Italy; <sup>2</sup>Louisiana Center for Bleeding and Clotting Disorders, Tulane University Medical Center, New Orleans, LA, USA; <sup>3</sup>Research Centre on Public Health, University of Milano-Bicocca, Monza, Italy; <sup>4</sup>Quintiles, Rockville, MD, USA; <sup>5</sup>CIRFF/Center of Pharmacoeconomics, Federico II University of Naples, Naples, Italy and Research Centre on Public Health, University of Milano-Bicocca, Monza, Italy

## ProFEIBA Collaborating Investigators

- Finland
  - Riitta Lassila, MD
- France
  - Claude Nègrier, MD
- Germany
  - Wolfgang Schramm, MD
- Italy
  - Chiara Biasoli, MD
  - Massimo Morfini, MD
  - Angiola Rocino, MD
- Poland
  - Jerzy Windyga, MD
- Romania
  - Margit Serban, MD
  - Marusia Uscatescu, MD
- Sweden
  - Erik Berntorp, MD
- Turkey
  - Bülent Antmen, MD
  - Kaan Kavakli, MD
  - Bülent Zulfikar, MD
- United States
  - Shannon Carpenter, MD

## Introduction

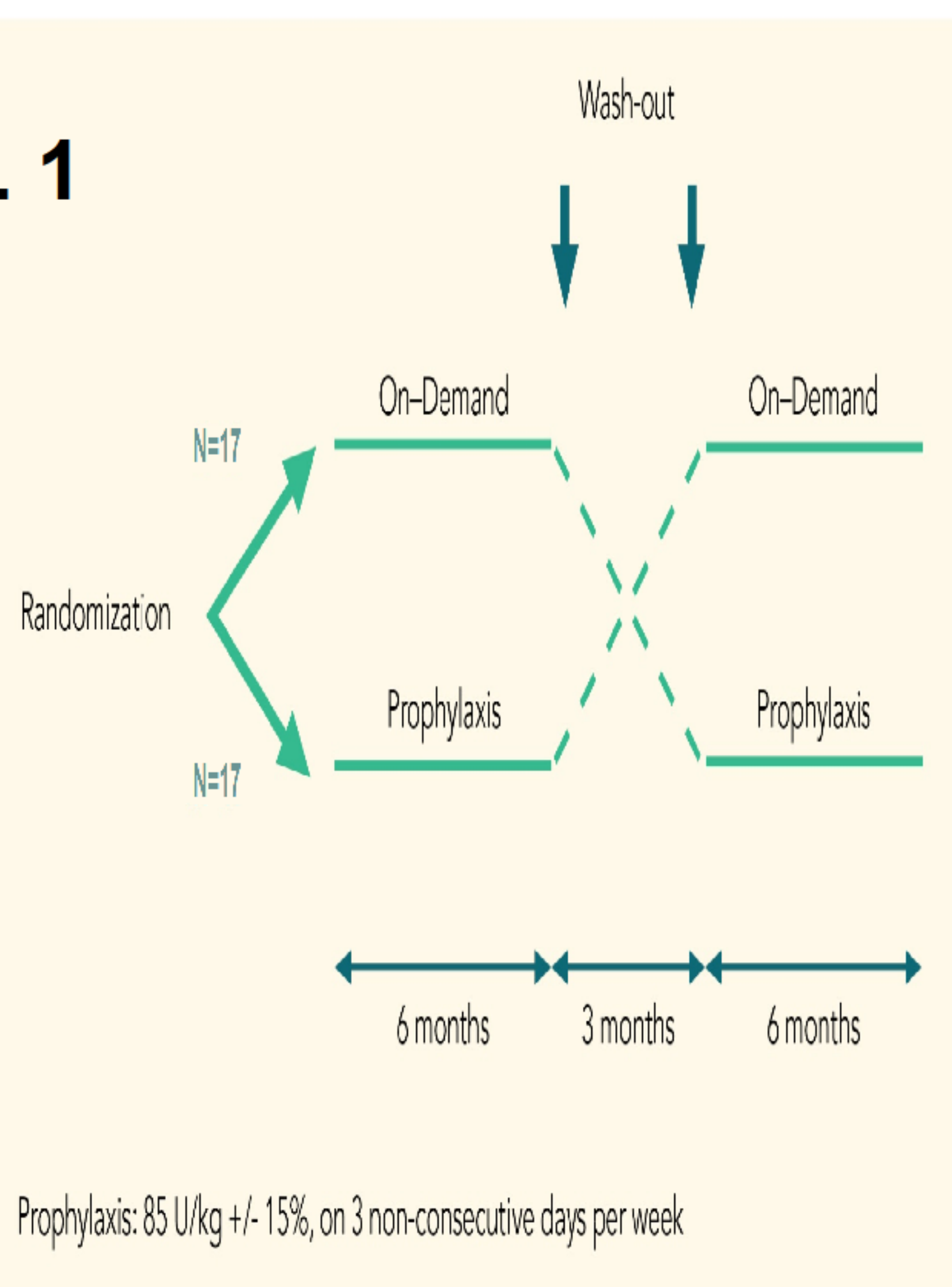
Anti Inhibitor Complex Concentrate (AICC) prophylaxis can significantly and safely decrease the frequency of hemarthrosis and other bleeding events in patients with severe hemophilia A and inhibitors, as shown by the Pro-Feiba Study (Leissinger et al, 2011), but it requires a huge absorption of economic resources. In an era of global economic downturn that affects health spending, it is crucial to assess costs of new therapeutic approaches to help decision-makers.

## Methods

Hemophilia A patients >2 years with inhibitors and using bypassing therapy to treat bleeding were recruited in a prospective, randomized, crossover study comparing 6 months of AICC (FEIBA NF, Baxter Healthcare Corporation, Westlake Village, CA) infused prophylactically at 85U/kg ± 15% on 3 nonconsecutive days per week with 6 months of on-demand therapy (AICC 85 U/kg ± 15% used on-demand for bleeding episodes). Prophylaxis and on demand (OD) periods were separated by a 3-month washout, while patients used OD therapy for bleeding (see Figure 1).

Cost evaluation was based on clotting factors consumption, mainly AICC but also rFVIIa and FVIII, which accounts for 99% of the overall costs and quantified it into monetary terms adopting the perspective of the third party payer. We calculated the incremental cost per bleeding avoided with the same method used by Gringeri et al. [2011]

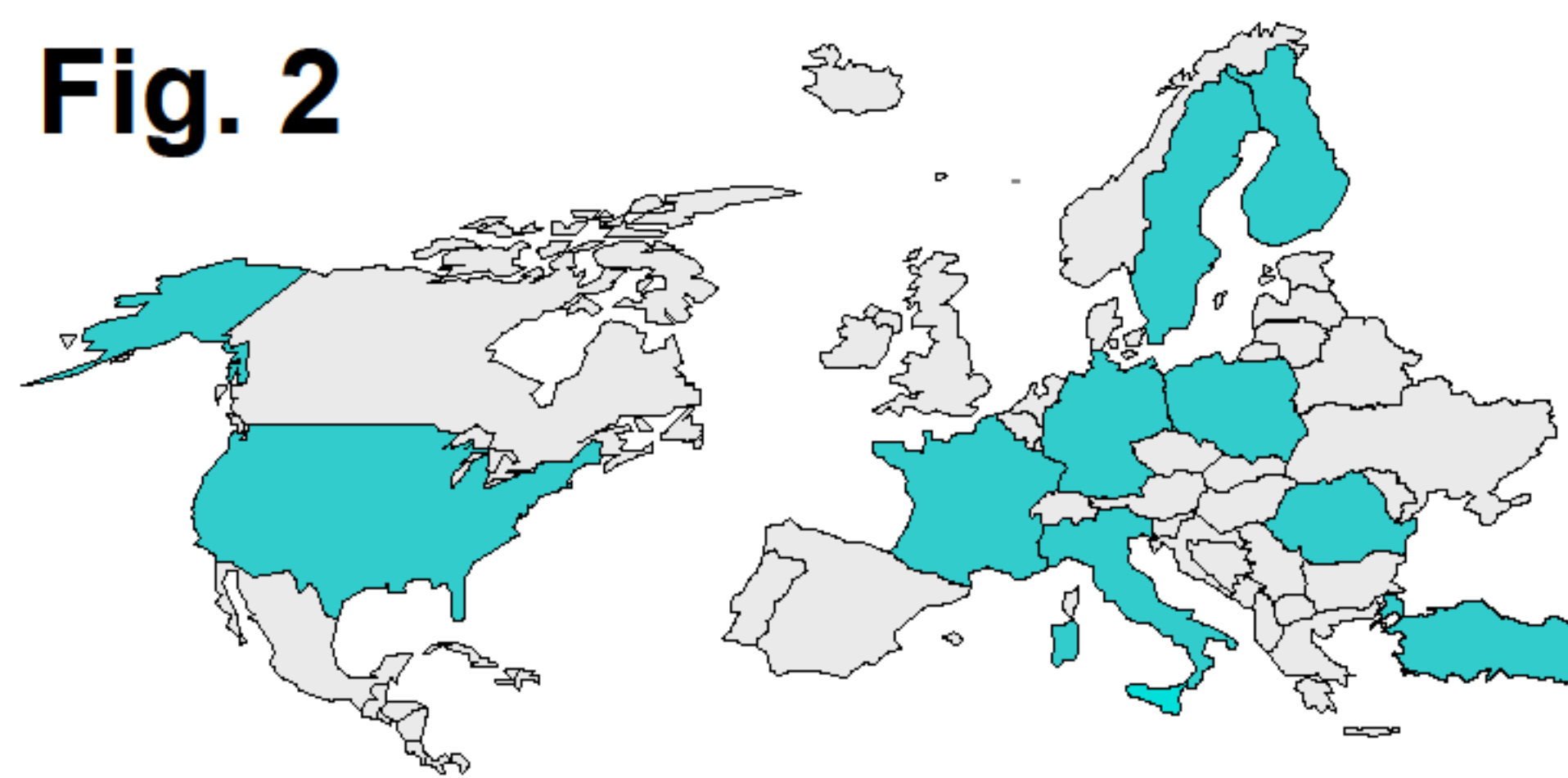
Fig. 1



## Patients

34 Patients were enrolled from 9 countries. The mean patient age was 26.9 years (range: 2.8-67.9)

Fig. 2

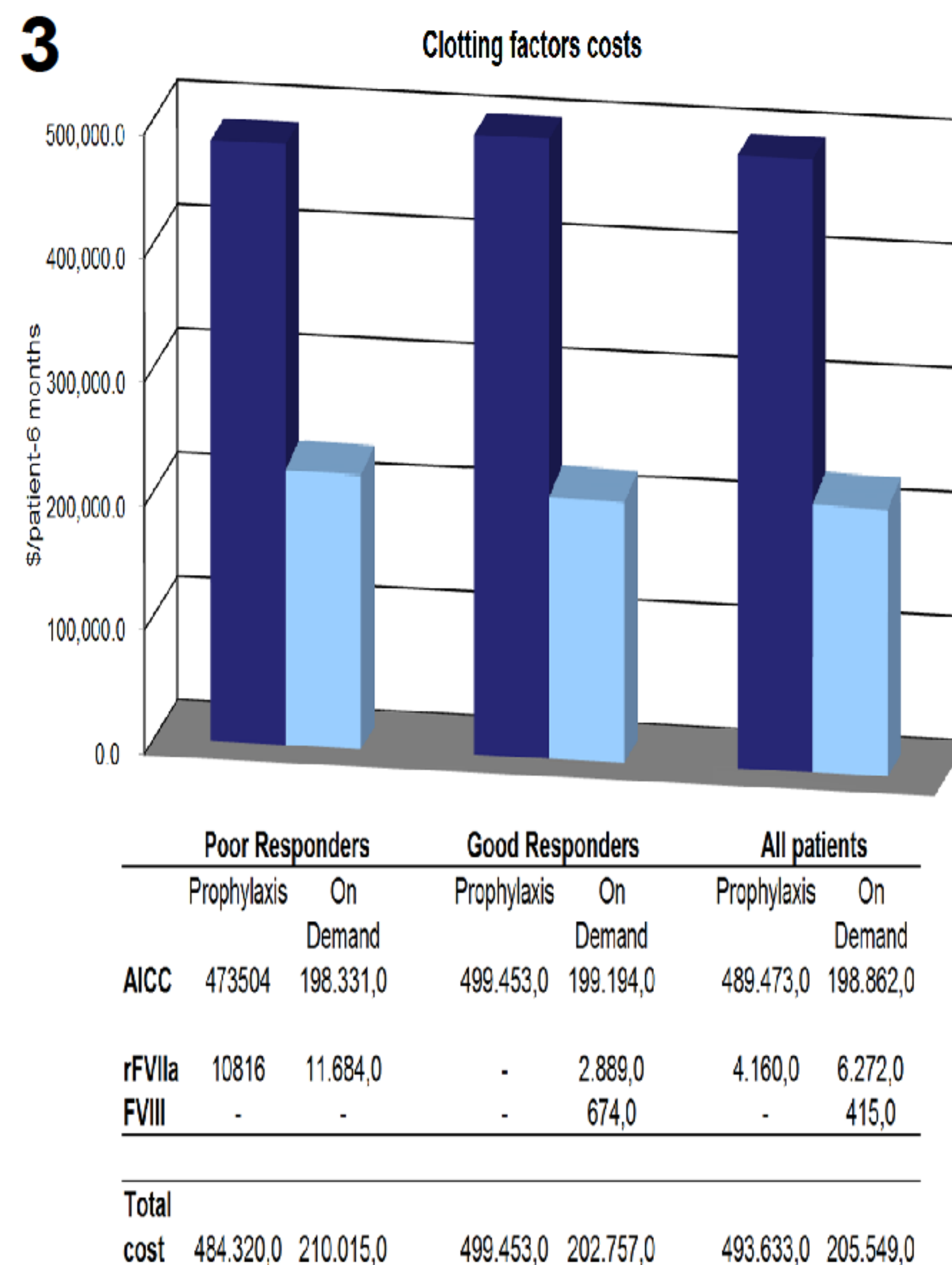


## Results

As already published (Leissinger et al, 2011) prophylaxis as compared with on-demand therapy was associated with a 62% reduction in all bleeding episodes (P<0.001), a 61% reduction in hemarthroses (P<0.001), and a 72% reduction in target-joint bleeding (≥3 hemarthroses in a single joint during a 6-month treatment period) (P<0.001).

The per-patient six-months cost of Prophylaxis and on demand treatment in all patients, in patients with ≥50% reduction in bleeding events (Good Responders) and in patients with <50% reduction are shown in Fig. 3. The incremental cost-effectiveness ratio in the Prophylaxis vs OD period are shown in Fig. 4. The cost per bleed avoided was \$ 585/kg body weight (mean body weight 60.8 kg).

Fig. 3



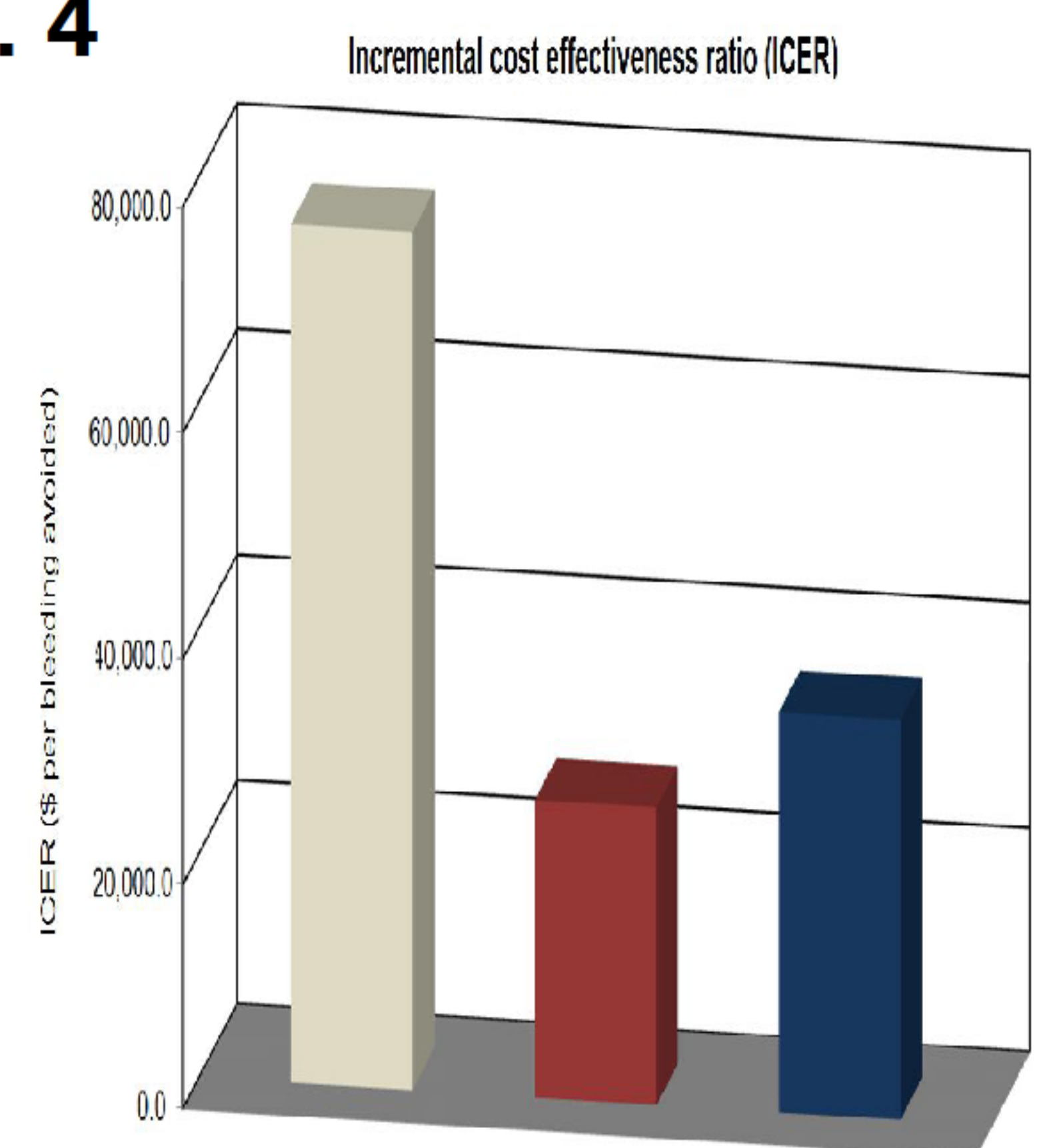
## Conclusions

The magnitude of difference in cost during treatment periods was proportional to the corresponding difference in bleeding rate: in the OD period cost were 58% lower than Prophylaxis, whereas during the Prophylaxis period bleeding events were 62% lower compared to OD period.

The incremental cost effectiveness ratio noticeably was more favorable in good responders, which is totally attributable to the marked difference in effectiveness.

Moreover the Incremental cost per bleed avoided during prophylactic period suggest Prophylaxis to be more cost effective in children, who could derive the greatest benefit in terms of joint disease and long-term disability.

Fig. 4



## References

- Leissinger C, Gringeri A, Antmen B, et al. Anti-inhibitor coagulant complex prophylaxis in hemophilia with inhibitors. *N Engl J Med.* 2011 365:1684-1692.
- Gringeri A, Lundin B, von Mackensen S, Mantovani L, Mannucci PM. A randomized clinical trial of prophylaxis in children with hemophilia A (the ESPRIT Study). *J Thromb Haemost.* 2011;9(4):700-710.

