



## **Smart technology used in hemodialysis**

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# Presentation outline

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# Introduction

Predictive analytics software are using the ultimate technology and statistical methods to search through massive amounts of information, analyzing it to predict outcomes for individual patients.

- In 2015, a smart software was integrated into the electronic database system in some clinics of a dialysis network.
- The anaemia management application is a predictive model based on real patient data and on physician experience which intends to improve the management of anaemia medication for haemodialysis patients.

# Objectives

- In order to manage better the secondary anaemia in CKD 5 patients, our aim is to optimise drug prescription maintaining haemoglobin levels within the target range [haemoglobin (10-12) g/dl] for over 80% of patients.

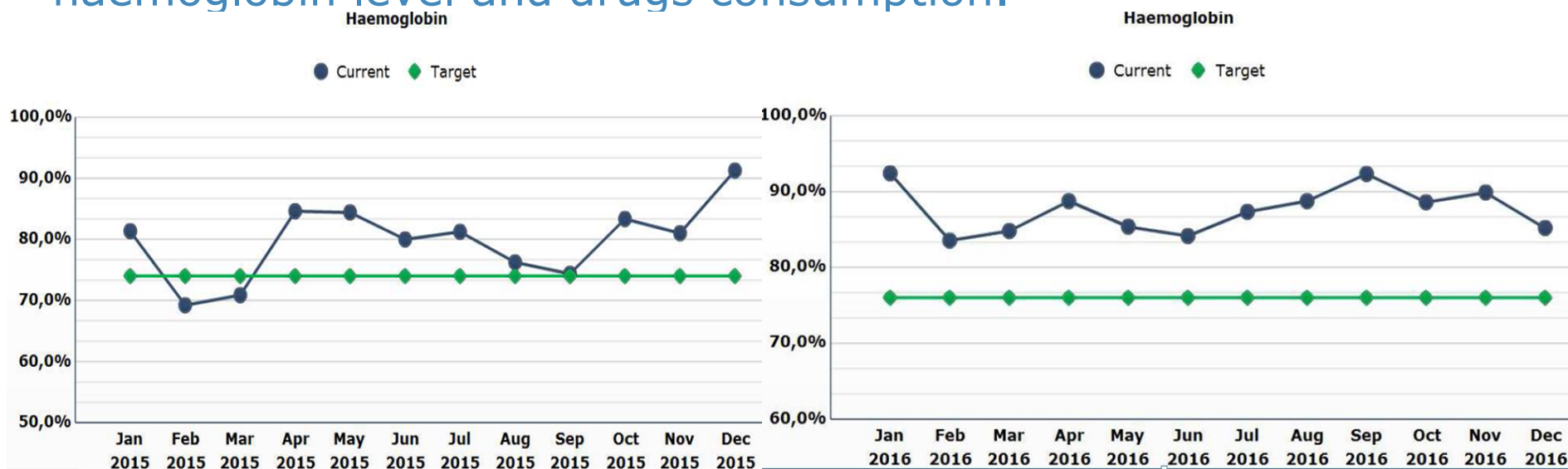
# Methods

- **The anaemia management application** analyses each patient's data existent in local database system, evaluating how to maintain haemoglobin and ferritin levels within the target range [haemoglobin (10-12) g/dl, ferritin (450-650) µg/l]. The application predicts and suggests the best erythropoietin-stimulating agent (ESA) / Iron drug therapy.
  1. Patient data are collected in database system.
  2. Anaemia management application analyses each patient's data, apply a specific validated algorithm and suggests the best erythropoietin-stimulating agent (ESA) / Iron drug therapy including dosage and scheduling.
- The anaemia management application **provides therapy recommendations, doctors formulate prescriptions**

Physicians can either issue the prescription according to the software indication or based on their personal experience.

# Results

- More than 80% software suggestions for ESA/Iron were confirmed by physician. Clinic achieved very good results in terms of haemoglobin level and drugs consumption.



- In September 2015, 74.4% of the patients were on target for haemoglobin (10-12 mg/dl) while in October 2016, 88.6% of the patients reached the same target.
- ESA consumption decreased from 1.17  $\mu\text{g}/\text{kg}/\text{month}$  in September 2015 to 0.81  $\mu\text{g}/\text{kg}/\text{month}$  in October 2016.

# Conclusions

- In June 2017, 84.6% of the patients maintain the target regarding the same haemoglobin values (10-12 mg/dl).  
In addition, the average of the Iron consumption (mg/kg/month), shows a slight decrease from 2.569195 in September 2015, to 2.227656 in June 2017.

<b>Month</b>	<b>Average of ESA consumption per clinic [µg/kg/month]</b>	<b>Average of IRON consumption per clinic [mg/kg/month]</b>
<b>September 2015</b>	<b>1.177395</b>	<b>2.569195</b>
<b>October 2016</b>	<b>0.818683</b>	<b>2.469855</b>
<b>June 2017</b>	<b>0.960928</b>	<b>2.227656</b>

The integration of intelligent software into clinic processes can be a step ahead to maintain patient safety and improve patient outcomes while reducing costs.

**Thank You Very Much  
for Your Attention!**



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**Position  
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