

The North American designers - SABM Session

Moderators: Sigismond Lasocki, Patrick Meybohm

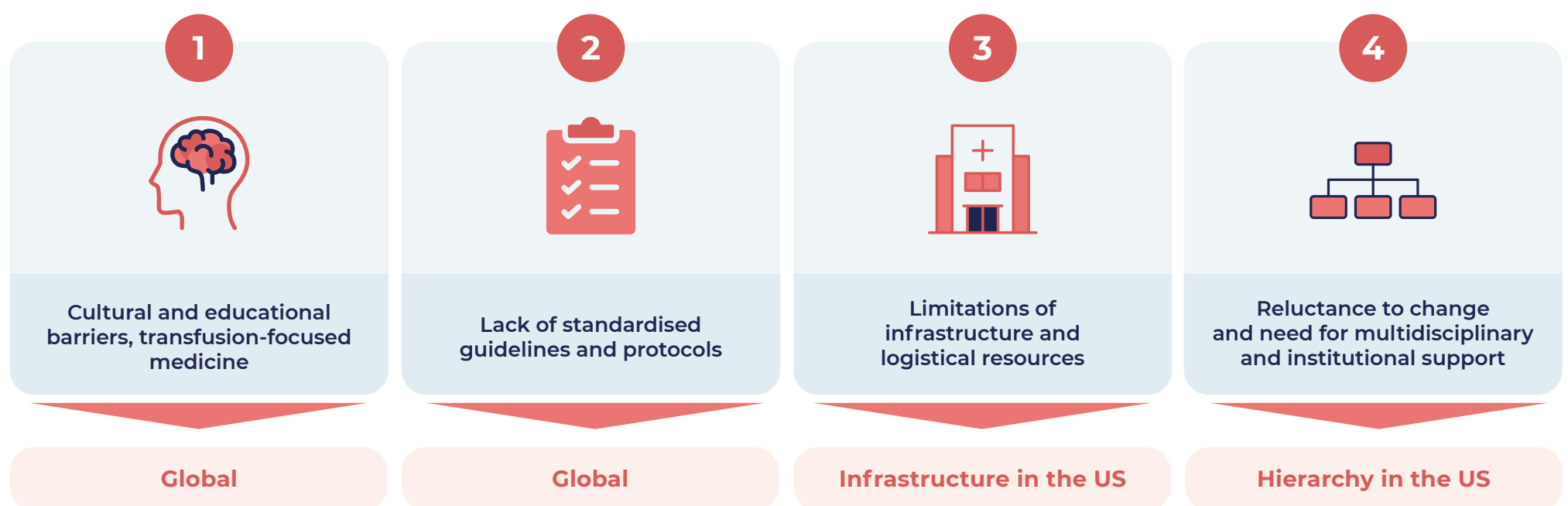
Friday, May 01, 2026

1. PBM IN THE US: CHALLENGES AND SUCCESSES

Linda Shore-Lesserson

Regardless of the definition used, the goals and challenges of *Patient Blood Management* (PBM) are shared globally and are tackled in the main international guidelines. In this context, PBM implementation remains one its main challenges¹. The governments of some countries are very invested in this aspect of health: Western Australia, Romania, Germany, and Canada are some examples (and a source of envy).

The PBM measure package published by the *Society for the Advancement of Patient Blood Management* (SABM) includes the different obstacles identified in the United States for its implementation²:



Additionally, SABM, like other scientific societies, adhered to the 2012 Choosing Wisely campaign, an initiative of the *American Board International Medicine* (ABIM)³ and issued recommendations focused on anaemia management:

1. Not performing elective surgeries without having previously diagnosed and treated anaemia.
2. Minimizing bleeding and using antifibrinolytics when indicated.
3. Ensuring the patient's informed consent, having previously discussed alternatives to transfusion.

Moreover, hospitals such as North Shore and others in the United States have promoted initiatives like including alerts in the electronic clinical history and warnings in prescription orders for blood products, including recommendations based on clinical guidelines during the prescription process. These strategies favour a better anaemia management and promote evidence-based transfusion practices. At the same time, they help reduce clinical variability and the number of transfusion units, thus improving clinical outcomes and reaching under 6% of requests for packed red blood cells versus all other requests for simple units.

In the United States, a transfusion-centered healthcare culture still prevails. However, in the last few years, there has been a significant increase in PBM education and the publication of guidelines and clinical algorithms:

- In 2021, the concept of PBM was first included in North American cardiac surgery guidelines⁴.
- The *Society for Perioperative Assessment and Quality Improvement* (SPAQI) published in the last few years reviews on perioperative anaemia diagnosis and treatment, as well as other haemorrhagic disorders (2024 and 2025)^{5,6}.
- The *American Society of Anesthesiologists* (ASA) is planning to publish in 2026 new clinical practice guidelines focused on anaemia screening and treatment.

The United States healthcare system has experienced a remarkable transformation over the last 25-30 years:



In this context, incentives linked to the patient experience represent a relatively recent concept, while models based on procedures and services have historically posed an obstacle for PBM implementation.

An effective implementation of PBM requires the availability of sound data to prove their clinical impact. In this regard, further evidence must be generated, such as that brought about by a recent study published in *Anesthesiology* in 2025, including almost 31,000 patients and associating PBM with a reduction in complications after the surgery, during the hospital stay and in transfusion rates and indexes⁷.

Besides the challenges inherent to the organization of the American healthcare system, there are two challenges shared by different countries⁸⁻¹⁰:

- The limited time available during the preoperative period.
- The need for an effective multidisciplinary cooperation.
- A successful PBM implementation will require data proving an improved evolution, shortening of hospital stays, cost reduction, and the best possible patient experience.



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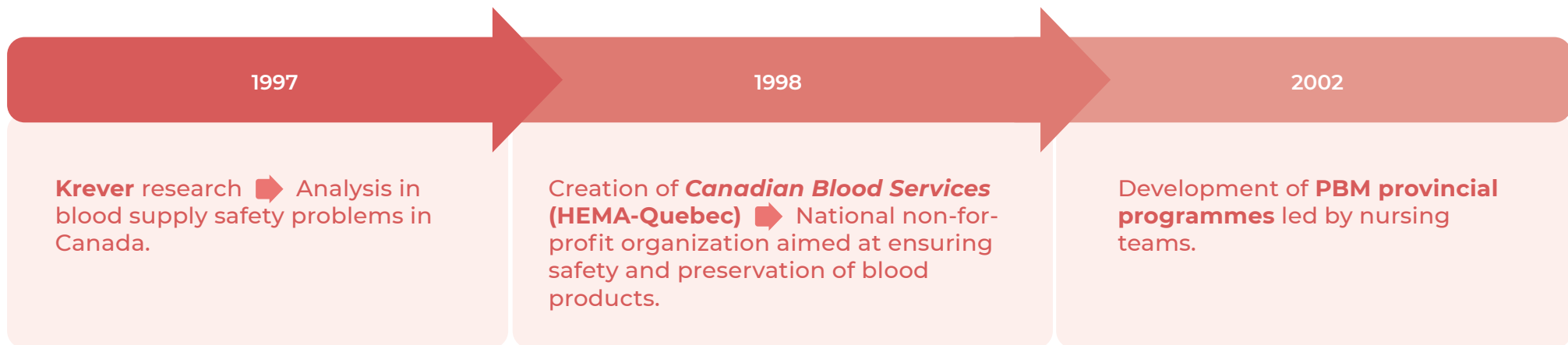
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2. CANADIAN EXPERIENCE: 25 YEARS OF PBM PROGRESS

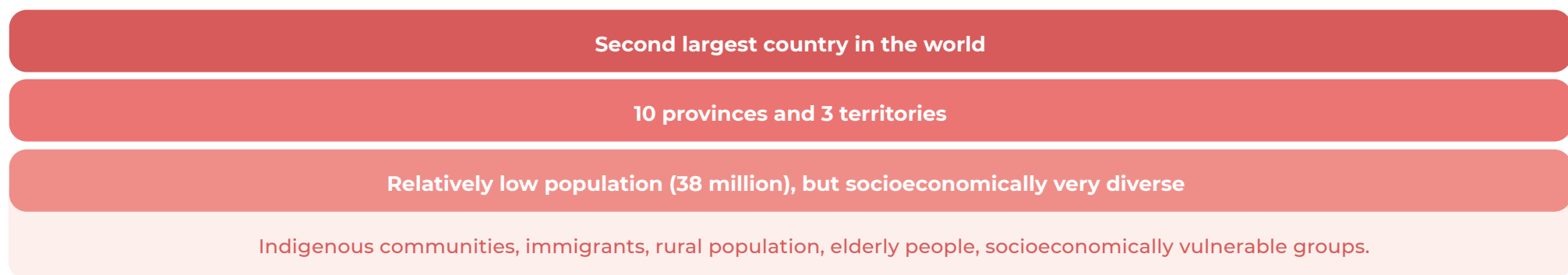
Becky Rock

GENERAL CONTEXT AND HISTORIC EVOLUTION



DISTINCTIVE FEATURES OF THE COUNTRY AND THE CANADIAN HEALTHCARE SYSTEM

Canadian PBM cannot be understood without considering the country's specific features:



In this context, PBM in Canada is presented not just as a clinical strategy, but also as a healthcare equity tool.

The Canadian healthcare system is decentralized and depends both on the federal government and the provinces and regional authorities. This structure creates a significant organizational and budgetary heterogeneity. Consequently, PBM funding and implementation level vary between provinces, regions and even hospitals.

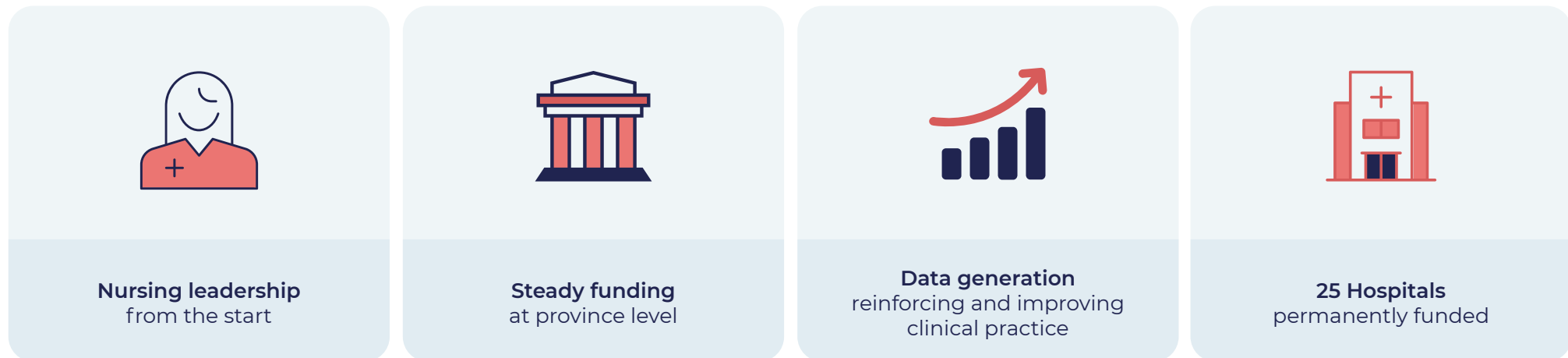
PBM CHARACTERISTICS IN CANADA

- **Programmes led by nursing:** Nursing leadership has allowed to develop management models that are integrated, coordinated, consistent, efficient, and cost-effective.
- **Research and results:** Canada also has a sound PBM research tradition. Cooperation between researchers, clinicians and national suppliers of blood products has been fundamental to generate quality scientific evidence.

As a prominent example, the TRICC study (*Transfusion Requirements in Critical Care*) was the first one to show that restrictive transfusion strategies provided benefits in critical patients when compared to liberal strategies¹¹.

THE ONTraC MODEL

The ONTraC programme (*Ontario Nurse Transfusion Coordinators*) emerged from an innovative idea—having the nursing staff leading PBM coordination under medical supervision. This initiative was led by doctor John Fredman, Medical director at Saint Michael Hospital in Toronto. These are the its main features:



Nursing staff leadership is focused on the programme implementation and coordination, as well as training and awareness-raising amongst professionals and gathering the generated data. The sites included in the programme have stable funding, regardless of any internal changes that may occur.

After over 20 years running, ONTraC has accomplished a significant reduction in the number of transfusions, hospital stays, and infection rates¹².

However, some provinces with a less developed PBM infrastructure present a lower use of blood products than Ontario. This fact probably reflects the influence of multiple factors and nuances, including demography, volume of surgeries, rurality, population characteristics, and distribution of blood products to smaller hospitals. Consequently, reality is more complex than the simplified idea that the implementation of a PBM programme is automatically translated into better clinical outcomes.

PBM IN OTHER CANADIAN PROVINCES

Nova Scotia	Alberta
• Advanced program with 150 monthly referrals. • Led by nurses with PhD and with diagnostic and prescriptive capacity in terms of anaemia and bleeding.	• Among the lowest use of red blood cells in the country • Long-term restrictive transfusion culture, with strong innovation. • Multidisciplinary cooperation between services and referrals. • Good access and data generation.
British Columbia	Manitoba
• Nursing-led model, with medical support and gradual development of a provincial framework.	• Model integrating PBM and transfusion safety in the same structure.
Saskatchewan	Quebec
• Focus on the Enhanced Recovery After Surgery (ERAS) programme.	• Emerging nursing-led models imported from Ontario.
In short, Nursing leads PBM in Canada	

FUTURE CHALLENGES

Despite the progress made in the last few decades, the homogeneous and equitable implementation of PBM in Canada still faces several structural and organizational challenges:

1. Geography and accessibility:

Many remote communities still have problems to access treatments such as intravenous iron.

2. Equity and inclusion:

Inequalities persist in access to PBM by indigenous, rural, and migrant populations.

3. Irregular funding between provinces:

Coverage and resources allocated to PBM are still highly variable between provinces.

4. Infrastructure and data availability:

The availability of integrated data for national *benchmarking* is still limited.

5. Development of a PBM national framework:

It remains necessary to establish a homogeneous national framework facilitating PBM implementation and coordinated development throughout the country.



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3. DATA-DRIVEN PBM: USING ANALYTICS TO IMPROVE PBM IMPLEMENTATION

Matthew Warner

Current and future PBM requires robust information systems able to measure results and support clinical decision-making. Data analysis can be used to optimize PBM programmes and to prove their clinical and organizational impact.

Without data, PBM is just a concept, and it is difficult to get institutional support for its implementation.

WHAT TYPES OF DATA ARE RELEVANT FOR A PBM PROGRAMME?¹³

1. Basic level: ADMINISTRATIVE

It uses administrative data and allows to measure general indicators, such as the percentage of transfused patients, the prevalence of anaemia before elective surgery, or basic variables such as the length of the hospital stay and readmissions.

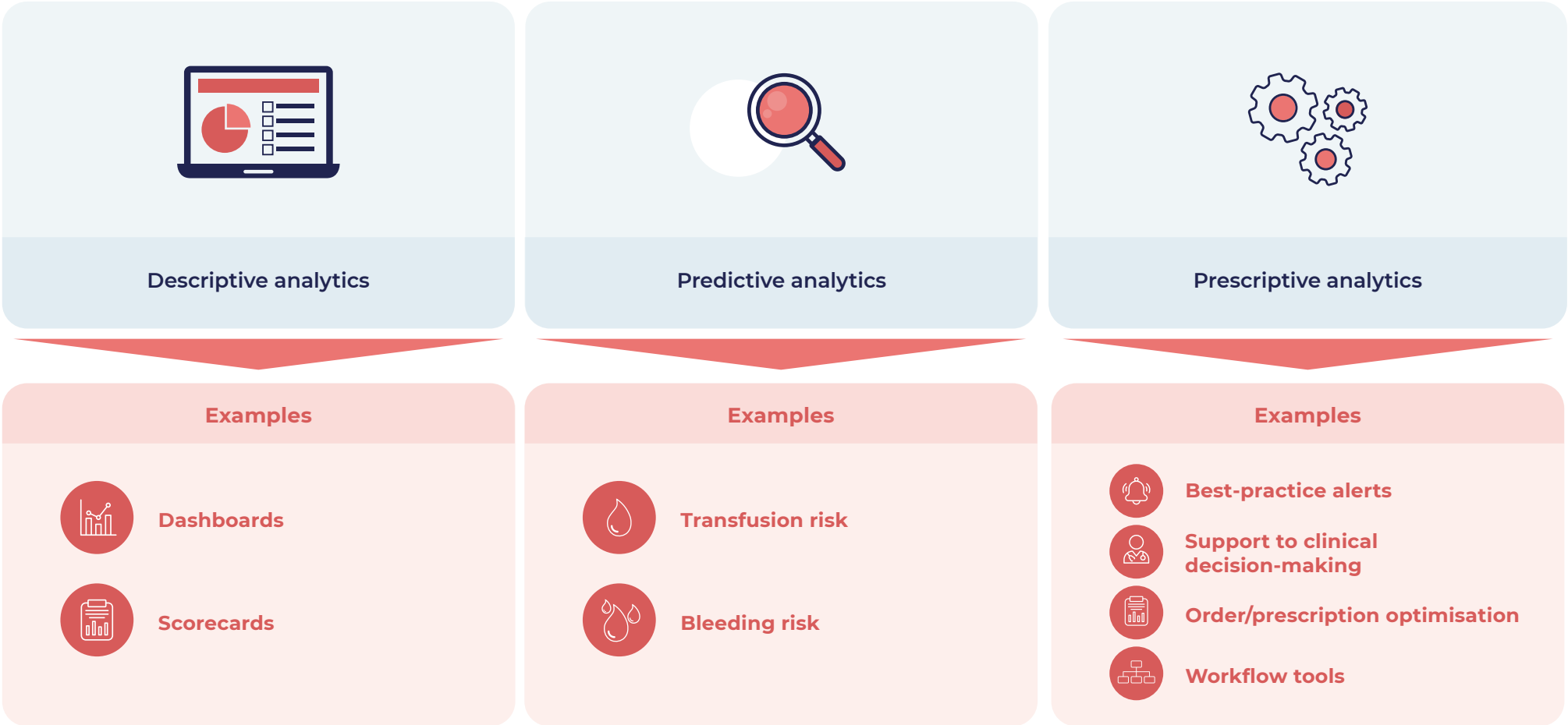
2. Intermediate level: ADMINISTRATIVE+LABORATORY+BLOOD BANK

It includes lab results and blood bank data, allowing the analysis of the number of transfused units per admission, transfusion patterns (ONE UNIT VERSUS CH MULTIUNITS), or the relationship between analytical parameters and transfusion.

3. Advanced level: ADMINISTRATIVE+LABORATORY+BLOOD BANCK+O.R.+E.R.+PHARMACY+ICU DATA

It integrates information from the O.R, E.R., ICU, pharmacy, and clinical systems, enabling the development of predictive models and support tools for clinical decision-making.

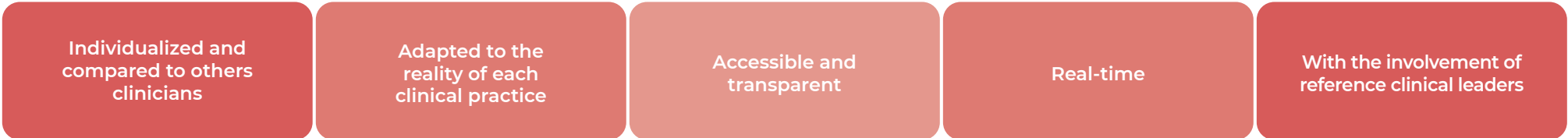
The data generated can be analysed in different ways:



Data analysis in the Mayo Clinic PBM programme is structured around five main areas. Next, some of them are described, together with examples of real-time monitored variables:

1. Use of transfusions:

- Use of packed red blood cells, plasma, platelets, and cryoprecipitates, as well as identification of clinical services with most utilization.
- Indicators of transfusion adequacy, such as the percentage of transfusions performed based on different haemoglobin thresholds.
- Data segmentation and comparison based on the type of professional, clinical service or healthcare context.
- Individualized information return systems for clinicians.



- At the prescribing level, alert integration in electronic prescription for patients rejecting transfusions or for prescriptions outside the recommended thresholds.

2. Anaemia management

- Preoperative anaemia consultation and treatment rates, as well as longitudinal follow-up from anaemia detection through correction or evolution of haemoglobin levels.
- Monitoring the use of intravenous iron in obstetrics and its association with improvements in haemoglobin levels.
- Identification of surgical patients due to undergo surgery with a high risk of bleeding.
- At the prescribing level, integration of alerts suggesting the referral of patients with preoperative anaemia for assessment and treatment.

3. Bleeding/coagulopathy

- Dynamic monitoring of ICU patients and tools to predict bleeding or impact on different organs.
- Development of predictive models to estimate bleeding risk using analytical parameters and clinical evolution of the patient over time.

4 and 5. Clinical outcomes and use of resources and costs

- Assessment of variables such as ICU admissions, readmissions after 30 and 90 days and length of hospital stay.
- Analysis of healthcare costs and estimation of savings associated with the implementation of the PBM programme.

In summary, data are an essential component of any PBM strategy, since they enable the identification of improvement opportunities, monitorization of indicators and demonstration of the clinical and economic value of the programme. For this information to be really useful, it must be presented in a way that is accessible and understandable to both clinical professionals and healthcare managers.

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