

ECONOMIC BURDEN OF INTRAVENOUS IRON PRODUCTS IN PUBLIC HOSPITALS OF PARIS AND IMPACT OF THEIR NEW HOSPITAL-RESTRICTED STATUS

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Background

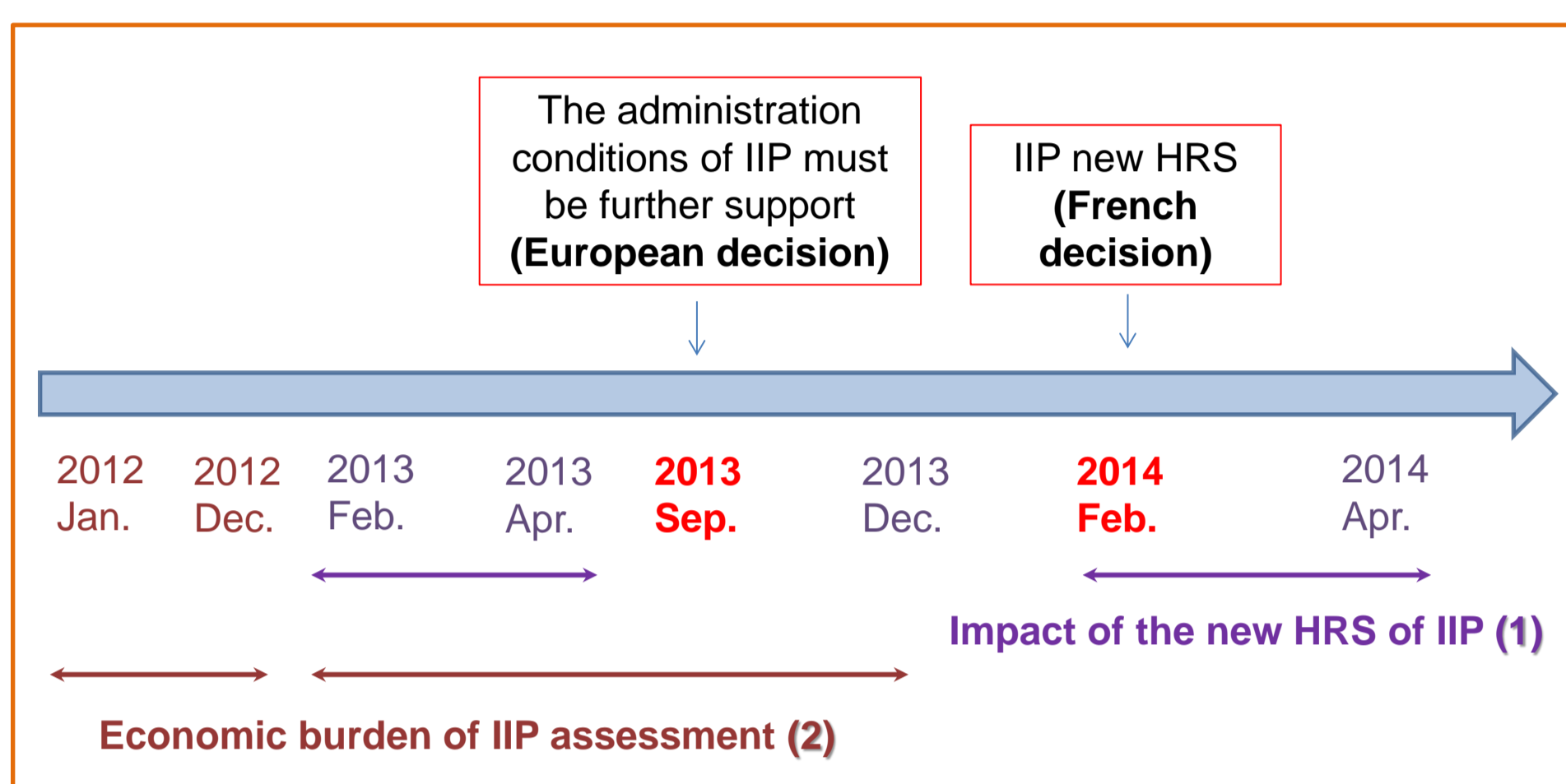
The administration conditions of intravenous iron products (IIP) must be further supported due to safety concerns, according to a decision made by the European Commission (September 13, 2013). To achieve this European decision, French Health Authorities gave to IIP a **hospital-restricted status (HRS)**, with two consequences on the IIP circuit: i) **the dispensing** of this products is now authorized by hospital pharmacies only; ii) **the administration of IIP to patients** must be done in a health care facility (including dialysis facilities and day care facilities). This involve that **the patient must now be hospitalized to receive an intravenous iron treatment**.

Objective

To assess the global economic consequences for French acute care (medicine, surgery and obstetric (MSO) activities) hospitals of the European decision to further support the administration conditions of intravenous iron products.

Methods

- **Determination of the changes in IIP consumption and expenditures** (data extracted from SAP software) by a two-steps study:
 1. **Impact of the new HRS of IIP:** comparison of IIP consumption and expenditures on a same period before (February-April 2013) and after (February-April 2014) they were attributed a HRS (1).
 2. **Economic burden of IIP assessment:** comparison of IIP consumption and expenditures in 2012 vs. in 2013 (before they were attributed a HRS) (2).
- **Determination of the evolution of the number of hospitalizations** in diagnosis related group (DRG) "sessions of chemotherapy for non-tumor disease" (DRG-CNTD) which linked diagnosis is anemia (Technical Agency of Information on Hospitals (ATIH) data extracted via Infocentre software) in February-April 2013 compared to February-April 2014.



Inclusion of hospitals:

The AP-HP is a group of 38 health care facilities (37 hospitals + one day care facility). **This study focuses on acute cares.**

Inclusion criteria of hospitals:

- To belong to AP-HP
- Deployment of the SAP software within the hospital
- At least 50% of the hospital care departments who consumed HCD in 2013 were MSO HCD.

Lastly, the study focused only on the acute care activity (MSO activity) HCD in the selected hospitals.

- **Medicines of the study:** all IIP which belong to the ATC class B03AC and which were listed in the AP-HP hospital drug formulary (HDF) in 2013.

Results

20 hospitals were included. Two types of IIP which belong to the ATC class B03AC were listed in the AP-HP HDF:

| INN | Trade name | Dosing | Cost of daily treatment |
|----------------------------|---|---|-------------------------|
| Iron sucrose (IS) | Fer Szd [®] 100 mg/5 mL Fer Myl [®] 100 mg/5 mL | 1. Determination of the total dose and of the dosing schedules 2. Recommended adult dosing is 100 to 200 mg of iron/injection, one to three times a week. | €5.2 to €7.8 |
| Ferric carboxymaltose (FC) | Ferinject [®] 100 mg/2 mL Ferinject [®] 500 mg/10 mL | 1. Determination of the cumulative dose of iron which should not be exceeded 2. Do not exceed 1,000 mg of iron/day (or 200 mg/day in case of hemodialysis patients) and 1,000 mg of iron once a week. For adults and children over 14 years old. | €120 to €150 |

Impact of the new HRS of IIP (1)

Global evolution on 3 months, before-after the HRS
 16.3% part of the total consumption increase in volume (DDDs)
+39% DDDs in 2014 vs. in 2013
+ € 164,338

Economic burden of IIP assessment (2)

Global evolution in a year, before the HRS
 9.6% part of the total consumption increase in volume (DDDs)
+21.4% DDDs in 2013 vs. in 2012
+ € 171,022

| Hospital admission* | Type of IIP | Part of the evolution between 2014 and 2013 | |
|---------------------|-------------|---|-----------|
| | | Volume (DDDs) | € |
| IH | IIP | +70.1% | +121,822 |
| | FC | +87.4% | +414,5527 |
| | IS | -17.4% | -19,730 |
| DHA | IIP | +23.7% | +39,063 |
| | FC | +24.1% | +39,103 |
| | IS | -0.38% | -40 |
| D | IIP | +4.4% | +273 |
| | FC | +5.7% | +4,976 |
| | IS | -1.3% | -4,703 |

| Hospital admission* | Type of IIP | Part of the evolution between 2013 and 2012 | |
|---------------------|-------------|---|----------|
| | | Volume (DDDs) | € |
| IH | IIP | +64.4% | +81,995 |
| | FC | +97.2% | +154,187 |
| | IS | -32.8% | -72,193 |
| DHA | IIP | +32.6% | +70,876 |
| | FC | +36.8% | +78,632 |
| | IS | -4.2% | -7,757 |
| D | IIP | +0.7% | +12,700 |
| | FC | +10.5% | +36,111 |
| | IS | -9.8% | -23,410 |

* Emergency departments results are note presented.

IH: inpatient hospitalizations, DHA: day hospital admissions, D: dialysis units

Increase of FC consumption: 23.9% of the total consumption
 (+ € 188,838)

Decrease of IS consumption: 16.4% of the total consumption
 (- € 24,500)

Number of DRG-CNTD linked to anemia increase: x 1.8.

* Emergency departments results are note presented.

IH: inpatient hospitalizations, DHA: day hospital admissions, D: dialysis units

Increase of FC consumption: 14.2% of the total consumption
 (+ € 274,533)

Decrease of IS consumption: 4.5% of the total consumption
 (- € 103,511)

Conclusion

Hospitalizing patients in a day care department as part of the DRG-CNTD is the only way to finance the additional hospital activity and the cost of treatment generated by the new hospital-restricted status of IIP, as **no additional funding is provided** for others hospital admissions. The major part of the IIP consumption and expenditure increase is attributable to a **growing FC use**. This is **certainly due to its simplified administration scheme** compared to IS's. However, **the cost of daily treatment by FC is about 20 times higher than by IS**, while only **one tariff** (€ 362.4 in 2014) is allocated for hospitalizations in DRG-CNTD, with a **drug case-mix of € 62 whatever the drug**. As a result, the costs of the FC increasing use to manage anemia may be offset by administration of other drugs, using the DRG-CNTD or the tariff of this DRG should be adjusted to the effective use of IIP. Another alternative would be to implement a tender between IIP, taking into account the cost-effective ratio of each drug.