Incidence of Occupational Blood and Body Fluids Exposures in French Hospitals: 2002-2007

Results of the AES-Raisin National Network

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Abstract

Introduction: Surveillance of occupational blood and body fluids exposures (BBFE) in France is standardised since 2002 and conducted at national level to monitor and challenge BBFE in French hospitals.

Methods: Participation of healthcare facilities (HCF) in this surveillance network (called AES-Raisin) is voluntary and anonymous. BBFE were documented using a standardised questionnaire adapted from Geres studies. The questionnaire documents the nature, circumstances (mechanism, type of device, infectious status of the source) and follow-up of each BBFE. Incidence of BBFE is reported per 100 hospital beds per year.

Results: In 2007, 15,605 BBFE were documented in 626 participating HCF, which accounted for 22 % of HCF and 46% of hospital beds in France, a steady increase since 2002. HCV or HIV status of the source was not known for more than 20% of documented BBFE. Post-exposure prophylaxis (PEP) decreased by 4% of exposed personnel (6.3% in 2002) and was discontinued in 41% mainly because the source patient appeared subsequently to be seronegative for HIV. Since 2004, sutures were the most frequent cause of BBFE (more than subcutaneous injections) and accounted for 1,270 (10%) of all BBFE occurring in surgery, obstetrics, ICU or emergency rooms. Prevention through education and use of blunt suture needles is still a priority. Compliance with glove use increased from 60.8% in 2002 to 68.3% in 2007 as did the sharps disposal containers accessibility from 64.6% in 2004 to 69.5% leaving however a huge number of at-risk behaviors. Although improving, the proportion of safety devices remained low in 2006 with 31% for intravascular catheters and 32% for needles for implantable devices. BBFE overall incidence was 7.5 per 100 beds in 2007. Considering that all French hospitals account for 448,505 beds, 33,628 BBFE could have occurred in France in 2007. Compared with 2004 (8.9% incidence and 41,429 estimated declared BBFE) we could estimate the number of prevented accidents to be nearly 8,000.

Conclusions: Our results indicate that HCWs safety has sharply increased during the past four years. To maintain and strengthen this tendency is the challenge for the new French 2009-2013 nosocomial infection prevention program, with a one fourth BBFE incidence reduction objective.

Introduction

Occupational exposure to blood and body fluids (BBFE) is a serious risk to healthcare workers (HCWs). BBFE surveillance has been a priority of nosocomial infection control since 1998 in France and a standardized surveillance of those exposures was implemented in 2002.

Objectives

- To estimate incidence and temporal trend of BBFE.
- To provide knowledge of BBFE in order to guide prevention policies.

Methods

- Data collected from the AES-Raisin national network from 2002 to 2007.
- Prospective surveillance of BBFE in healthcare facilities (HCF) participating on a voluntary basis.
- Type of data collected:
  - circumstances of each BBFE (mechanism, type of device, infectious status of the source, follow up);
  - administrative data (number of hospital beds or admissions, staff expressed in full-time equivalent (FTE) HCW per category and of some medical devices).
- Assessment of BBFE incidence per 100 hospital beds, per 100 FTE staff or per 100,000 units of purchased devices.
- Incidence comparisons: chi2 for trend.

Results

- In 2007:
  - 15,605 BBFE were reported in 626 participating HCF, which accounted for 46% of hospital beds in France;
  - Global BBFE incidence was 7.5 per 100 beds.

(1) Global indicator = BBFE incidence per 100 beds: decrease by 10% from 8.0 (2004) to 7.3 (2007)

- Number of participating HCF, BBFE and overall BBFE incidence per 100 beds, France, 2002 to 2007.

Year	2002	2003	2004	2005	2006	2007
Participating HCF	169	216	371	385	518	626
BBFE (n)	3,833	4,399	13,041	13,949	14,876	15,605
Overall BBFE incidence per 100 beds	6.9	7.5	8.9	8.8	8.0	7.5
95% confidence interval	[6.7; 7.1]	[7.3; 7.7]	[8.7; 9.0]	[8.7; 8.9]	[7.9; 8.1]	[7.4; 7.6]

- Indicators calculated using data from 150 HCF that participated continuously from 2004 to 2007.

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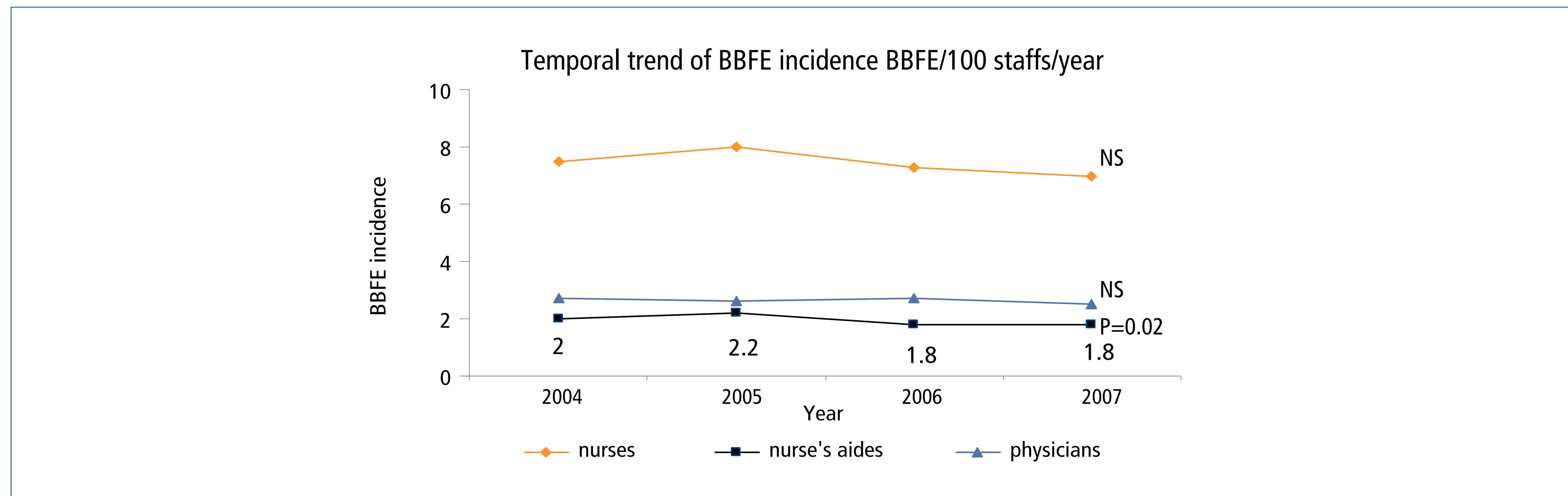
(2) Specific indicator = incidences for populations at risk

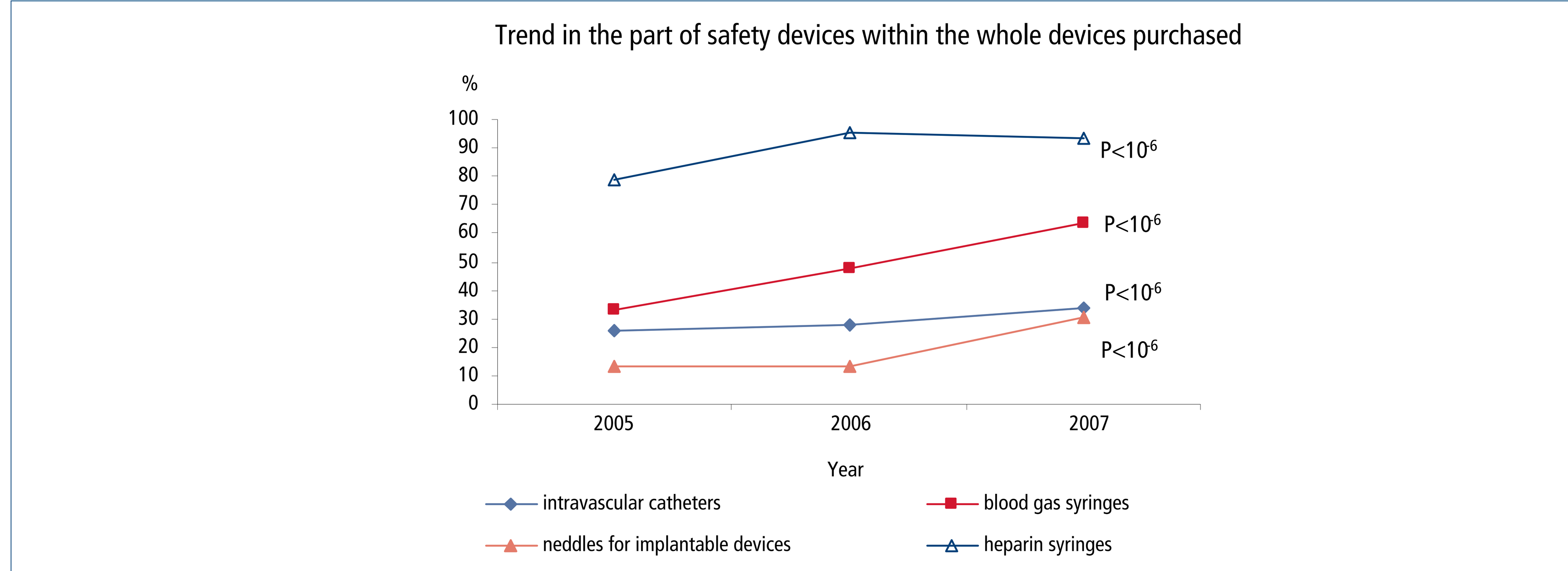
- Significant decrease in the BBFE incidence per 100 nurse's aides;
- No significant trend in the BBFE incidence per 100 physicians or per 100 nurses.



NS: non significant (Chi2 for trend)

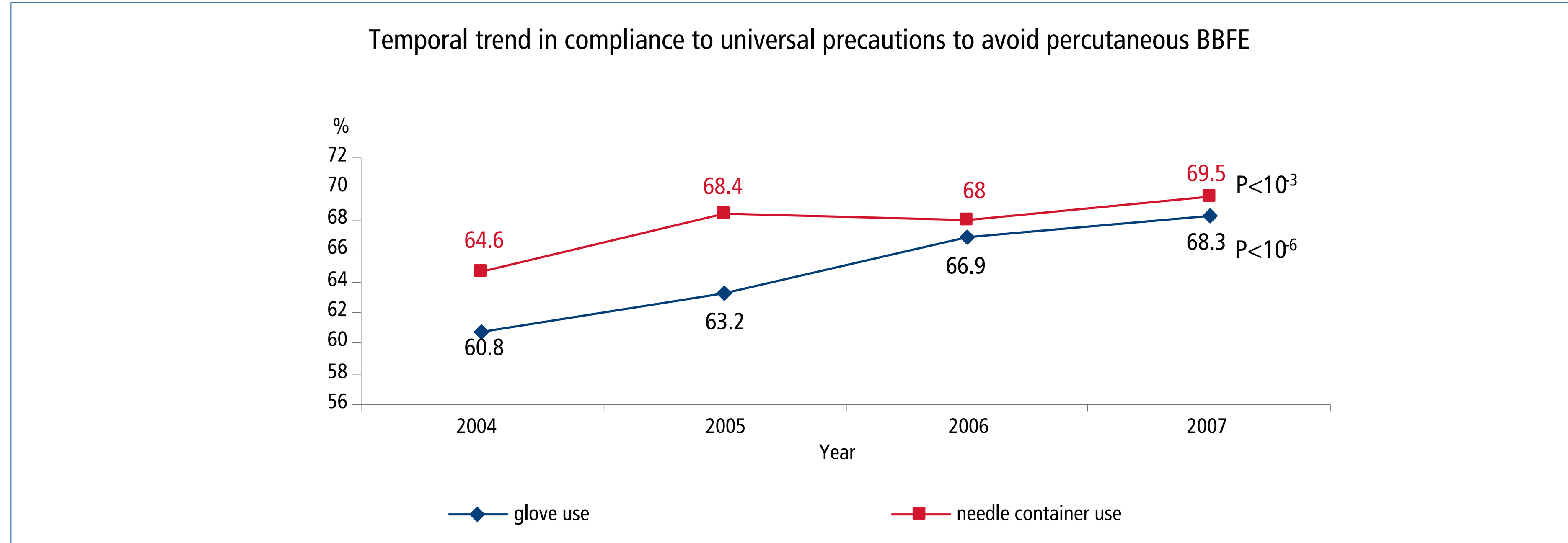
(3) Specific indicator = at risk procedures

- Sutures were the main BBFE injury, accounting for 10% (1,270) of all BBFE occurring in surgery;
- Significant increase in the purchase of safety devices.



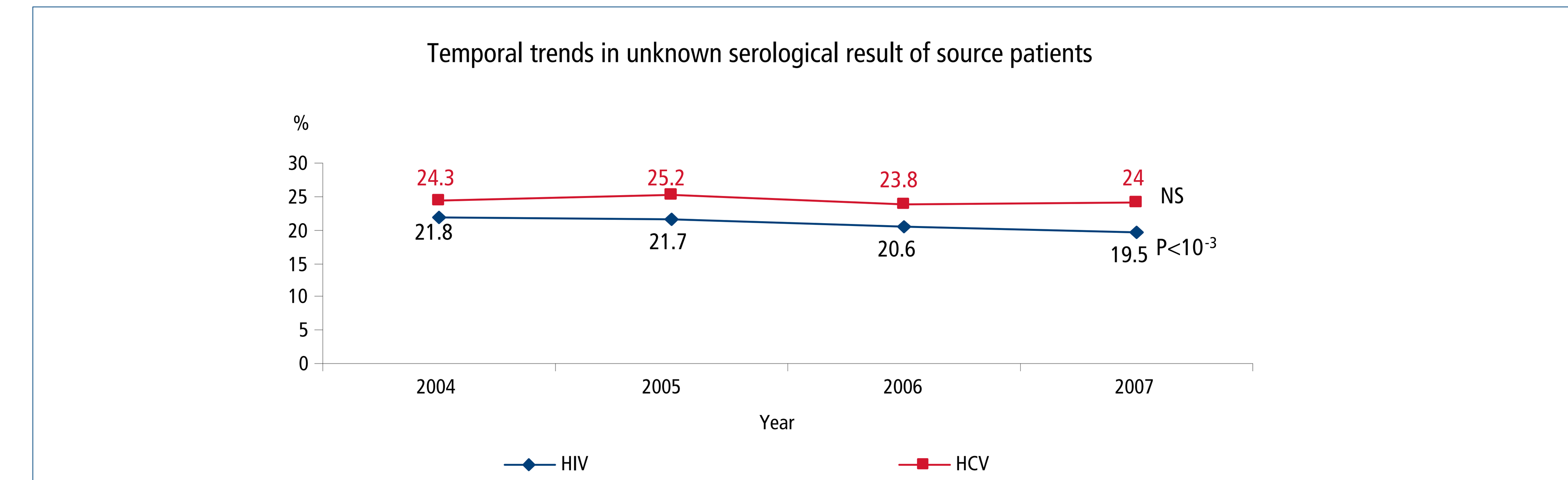
(4) Specific indicator = compliance with universal precautions

- Significant increase in glove use or needle container use.



(5) Specific indicator = follow-up

- No significant trend in the knowledge of HCV status of source;
- Significant increase in the knowledge of HIV status of source.



- Post-exposure prophylaxis decrease by 4% of exposed HCWs (instead of 6.3% in 2002).

Discussion

- Even if the coverage of French HCF through this network is not exhaustive, a real dynamic has been observed since 2002 within French HCF.
- BBFE incidence has decreased, result which can be partially explained by improvement of:
  - compliance with universal precautions;
  - compliance of some HCW category (i.e. nurse's aides) with protocols to prevent exposure to BBFE;
  - safety devices disposal.
- Our findings are consistent with the results provided by previous studies.
- Better knowledge of the HIV and HCV status of source may also have contributed improving the preventive management for exposed HCWs.
- Effort should be carry out to decrease underreporting of some HCW categories.
- Effort should be appropriate for targeted specialties or HCW categories.

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Conclusion

- By participating in this surveillance, HCF:
  - have better knowledge of BBFE;
  - become aware of risk factors;
  - and can enhance prevention, in order to improve of global BBFE prevention.
- Thus, in our cohort, HCWs safety may have been substantially increased these past years.
- Professional groups should be considered independently when developing education strategies to encourage compliance, by taking into account the various determinants of specific specialties and underreporting.
- The 2009-2013 French nosocomial prevention program strengthens this trend with the objective of one fourth reduction in BBFE incidence.

Authors declare no conflicts of interest.

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