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A COST-EFFICIENCY ANALYSIS OF THE BELGIAN POISON CENTRE AND ITS IMPACT ON HEALTHCARE EXPENSES

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OBJECTIVE

The present study evaluates the impact of the Belgian Poison Centre (BPC) on national healthcare expenses for unintentional poisoning incidents (calls from the public). The hypothesis states that the absence of the BPC leads to substantial cost increases as poisoning victims would unnecessarily use other, more expensive medical services.

METHODS

The probability of using three types of medical services – (1) calling the BPC, (2) consulting a general practitioner or (3) visiting a hospital's emergency department (ED) - by people with a poisoning problem was examined in a survey. From a total of 1,045 calls to the BPC during a period of seven randomly selected days in February and March 2016, 485 cases from the public for unintentional poisoning were included. For each of these cases the BPC proposed a follow-up strategy (stay at home, consult a general practitioner, visit an ED). In the week following the call, 404 out of the 485 patients were reached by phone to check whether or not they followed the initial advice received from the physician of the BPC. They were also asked what they would have done in case of absence of the BPC advice.

The probability of the patients' need after ED consultation to stay either in the hospital for a 24-hours observation or to be hospitalized was estimated through 2012-2013 global data received from Belgian Government (no distinction between intentional and unintentional poisoning).

Based on the survey data and the data from the Belgian Government, a cost-benefit analysis was performed by means of a medical decision tree. The cost of calling the BPC whether or not in combination with a general practitioner visit and/or a hospital visit versus the cost of a situation without the availability of the BPC was compared.

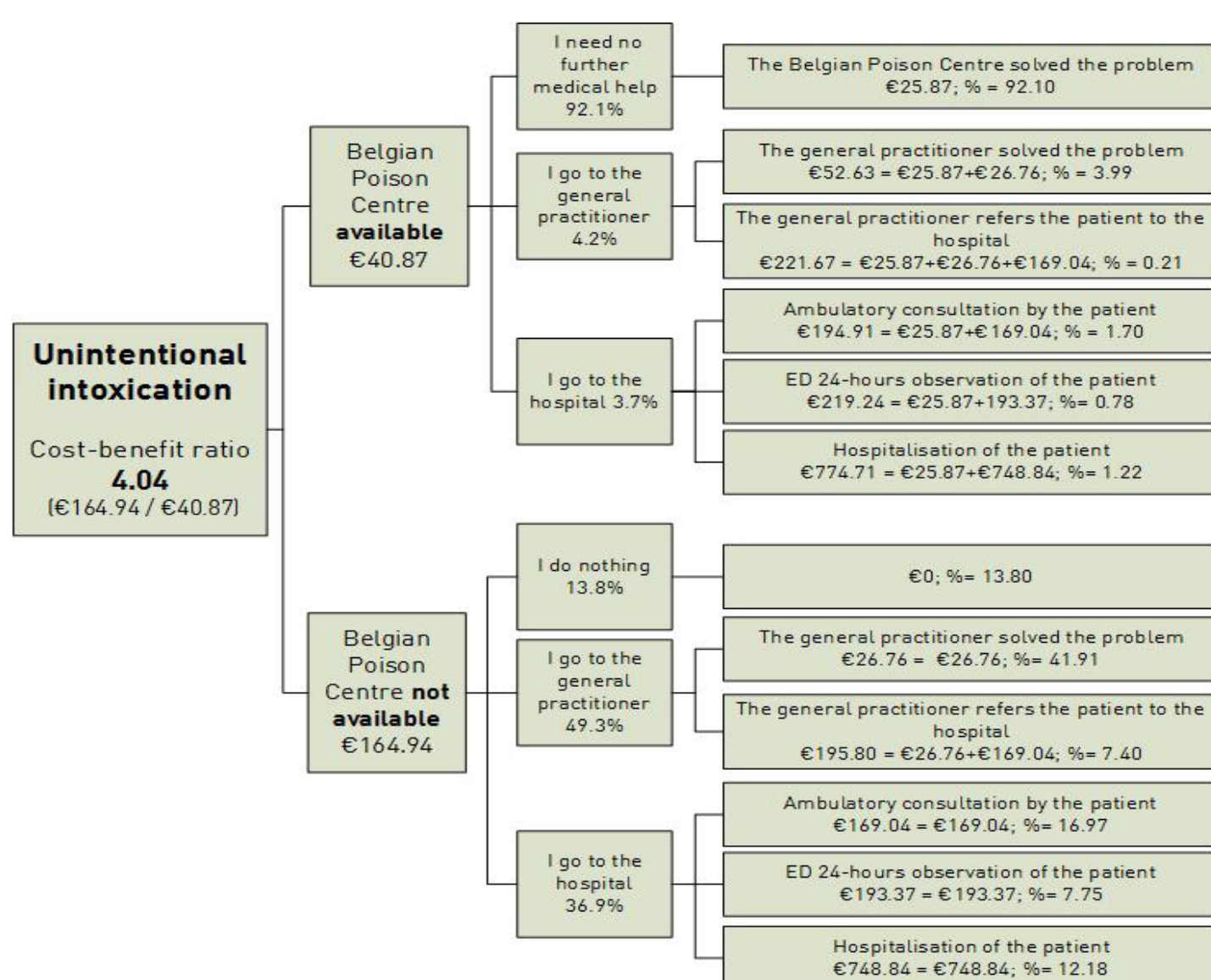


Figure 2: Medical decision tree for unintentional poisonings in presence or hypothetical unavailability of the BPC for calls coming from the general public. Percentages represent the actual final decision of the patient after having called the BPC.

CONCLUSION

The BPC is a cost-efficient first-line tool in case of unintentional poisoning compared with other healthcare services. Furthermore, as 13.8% of the patients would not have sought any help in case of unavailability of the BPC, some of them suffering from serious poisoning needing treatment would have been at risk for undertreatment.

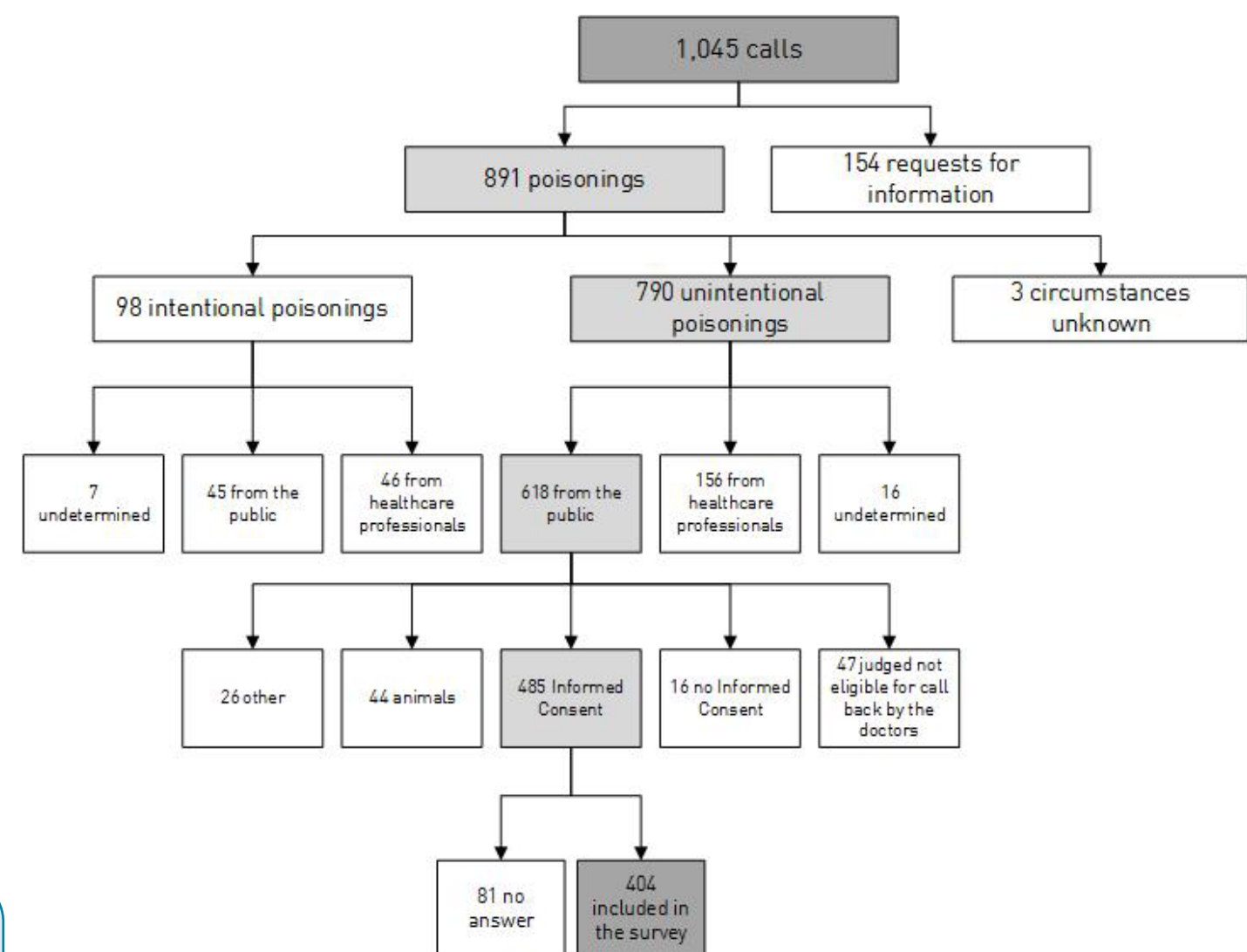


Figure 1: Flow chart of included calls during the period of the survey

RESULTS

Probability

When asked in the survey what the patients actually did after calling the BPC, 92.1% answered that they did not search further medical help, 4.2% said they went to the general practitioner and 3.7% said they went to the hospital. When they were asked what they would have done in case of unavailability of the BPC, 13.8% would not have sought further medical help, 49.3% would have contacted a general practitioner and 36.9% would have visited an ED (table 1).

Estimated from the governmental data 2012-2013, respectively 46.0% of people who visited an ED could leave the ED after consultation, 20.8% had to stay in the ED for a 24-hours observation and 33.2% were admitted to the hospital (1).

Cost

The average funding the BPC received from the Belgian Government in 2012-2013 was €1,961,736 per year, of which €1,373,736 (70.0%) was assigned to phone consulting. Considering an average of 53,087 phone calls per year in 2012-2013, the latter results in an average cost per call of €25.87.

The average cost 2012-2013 for consulting a general practitioner was €34.25 of which €26.76 was reimbursed by the government and €7.49 was paid by the patient (cost sharing).

Looking at the 2012-2013 governmental cost for hospital services, the median cost was running up to €169.04 for an ED ambulatory consultation, €196.37 for an ED 24-hours observation and €748.84 in case of an episode in the hospital in case of a hospitalisation.

Cost-benefit ratio (figure 1)

The presence of the BPC provides a positive cost-benefit ratio of 4.04 when compared with a hypothetical situation in the absence of a BPC (€164.94/€40.87). Taking into account an average of 30,718 calls per year from the general public for unintentional poisoning to the BPC in 2012-2013, this corresponds with a saving for the government of €3,811,134.94.

(1) One of the limitations of our study is that costs were extrapolated from hospital data on acute poisoning without distinction between intentional and unintentional poisoning.

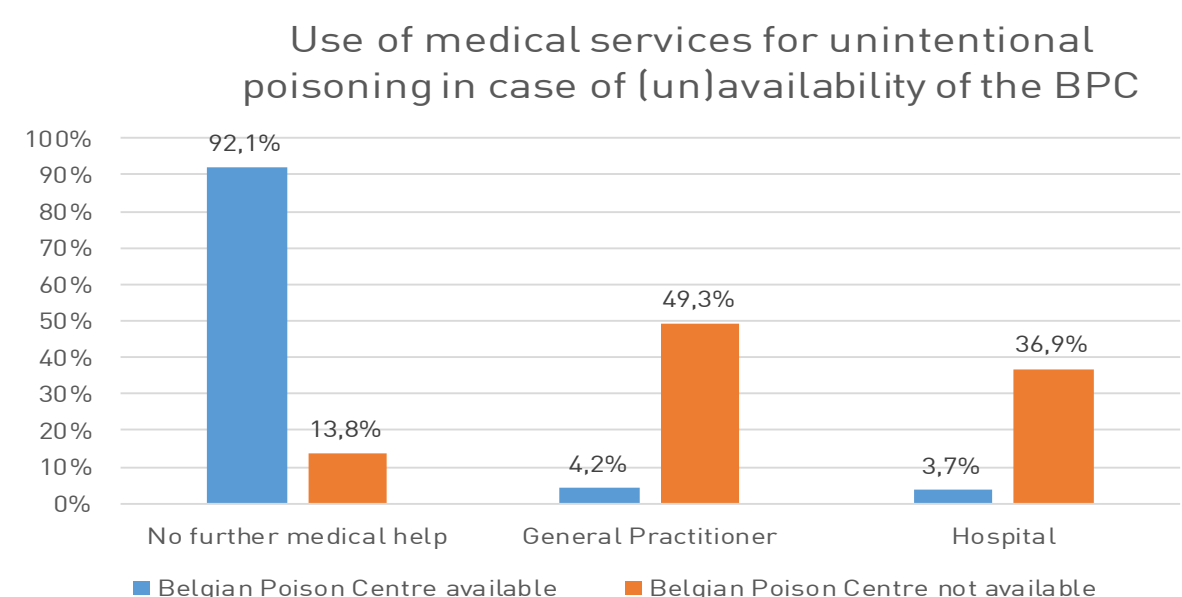


Table 1. Results of the survey: decision of the patient after BPC consultation versus hypothetical decision in case of unavailability of the BPC.