Hospital acquired influenza in a tertiary hospital in Slovenia during five consecutive influenza seasons: burden and clinical characteristics

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Introduction: Slovenia is one of the countries with a lowest influenza vaccine coverage rate in population. Despite various intensive activities to increase the rate of influenza vaccination of health care workers (HCWs) this also remains low. The aim of the study was to assess burden of hospital-acquired (HA) influenza in a setting with very low influenza vaccine coverage rate in HCWs.

Methods: We retrospectively assessed all medical records from patients treated in University Medical Centre Ljubljana from September 2011 to May 2016 who tested positive for influenza A or B. Patients treated only as outpatients, patients who tested positive for influenza before day 4 of hospitalization, those transferred from other hospitals and those who had symptoms and signs of influenza-like illness (ILI) at admission (as evident from medical records) were excluded from further analysis. Data on vaccination rates of hospital personnel were acquired from the Department of Infection Control. Clinical characteristics and treatment was assessed from questionnaires distributed by Department for Infection Control during seasons 2013/2014, 2014/2015 and 2015/2016 as a part of surveillance of healthcare associated infections which is approved by the ethical committee of the hospital.

Results: During the five consecutive seasons (2011- 2016) 658 patients were classified with HA influenza ranging from 76 to 193 per influenza season. The majority were cases of influenza A. Mean age on admission was 67,0 years (ranging from 61,8 to 70,0 years). At least one co-morbidity was present in 81,4 % of patients who survived and in 90,4% of patients who died. In-hospital mortality was overall 11,1% (ranging from 7,8% to 18,4% per influenza season) (Table1). The number of influenza cases in various departments was inversely proportional to vaccine coverage rate in HCWs in those departments (Figure 1, 2).

Conclusions: In a setting of very low influenza coverage rate in HCWs the impact of HA influenza is substantial. Presenting these data to HCWs can be a potentially important persuasive argument for raising the level of awareness of influenza vaccine importance in HCWs.

Table 1: Overall and seasonal characteristics of patients with hospital acquired influenza.

Characteristics	Overall	2011/2012	2012/2013	2013/2014	2014/15	2015/16
Total	657	76	109	131	193	148
Male (%)	363 (55,3)	46 (60,5)	49 (45,0)	77 (58,8)	110 (57,0)	81 (54,7)
Age on admission	67 (59,4; 81)	70	61,8	67,4	66,7	69,6
No died (%)	73 (11,1)	14 (18,4)	10 (9,2)	16 (12,2)	15 (7,8)	18 (12,2)
No of positive for infl.A	525 (79,9)	67 (88,2)	71 (65,1)	129 (98,5)	114 (59,1)	144 (97,3%)
No of positive for infl.B	132 (20,1)	9 (11,8)	38 (34,9)	2 (1,5)	79 (40,9)	

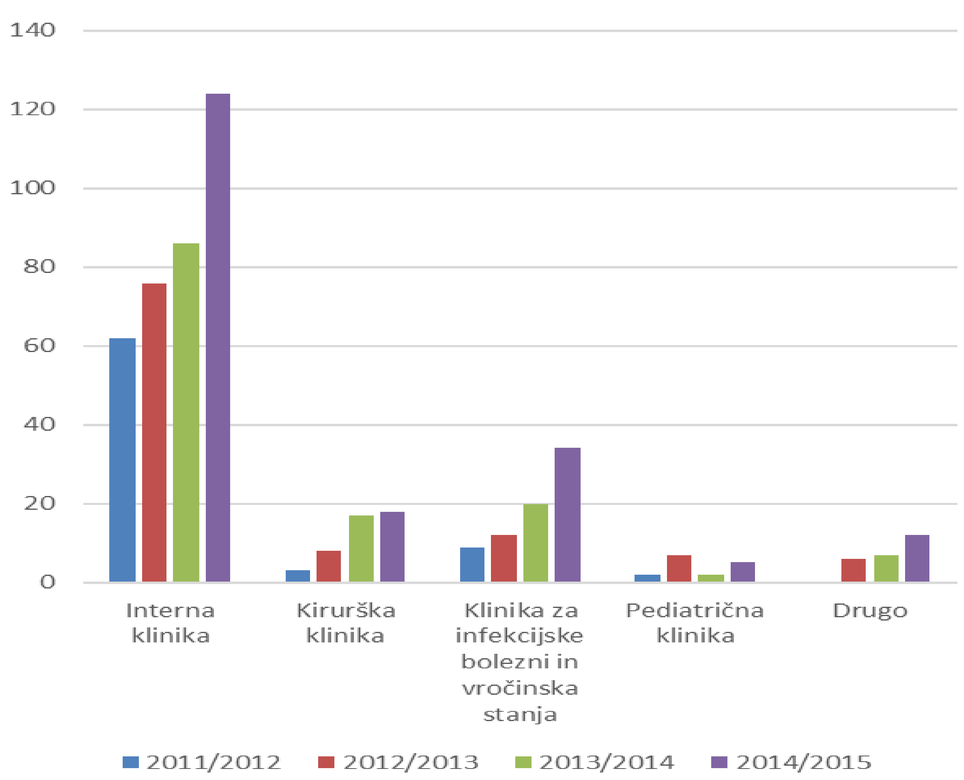

Fig.1 No.of HA influenza by departments

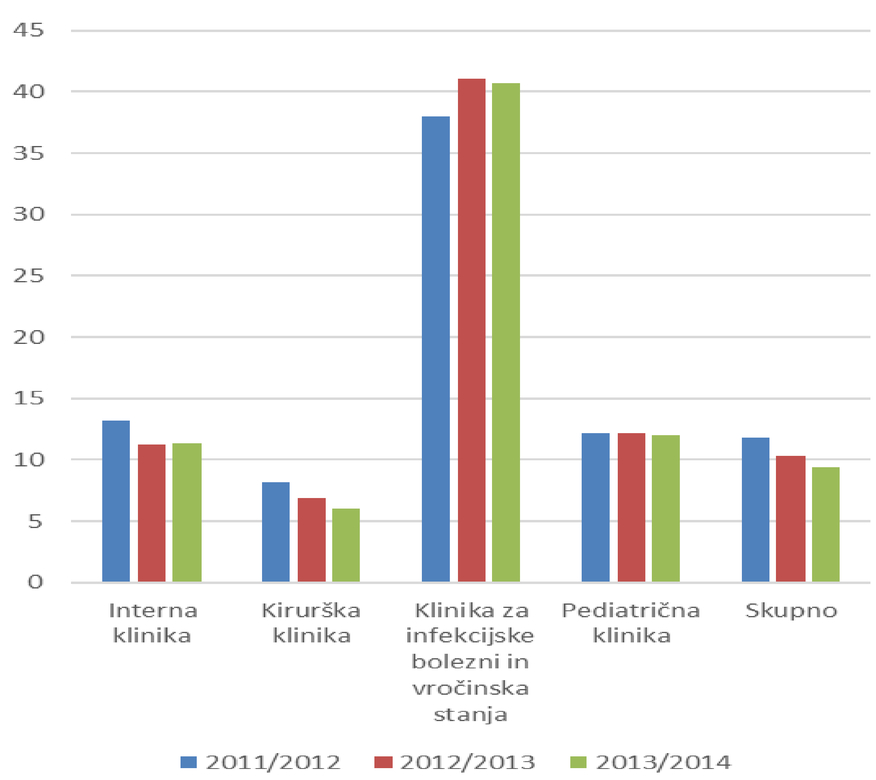

Fig. 2 Rate of vaccinated HCWs by department