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Unveiling the Hidden Costs of Flu in Algeria: A Micro-Costing Study on the Payor and Societal Burden of Seasonal Influenza

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BACKGROUND

The economic impact of seasonal influenza (Flu) on at-risk populations is well-documented in high-income countries. However, its effects are less understood in low and middle-income countries (LMICs), such as Algeria.

OBJECTIVES

We retrospectively estimated the economic burden of influenza from a healthcare payer and societal perspectives.

METHODS

Following best practice guidelines[3], we employed a micro-costing approach to retrospectively estimate the economic resources expended in treating seasonal influenza from both public and societal perspectives. Our assessment was informed by local retrospective data (2010-2013, Flu seasons) and robust literature estimates. The cost inputs of our evaluation were expressed in US dollars as the mean value of years 2010-2013. We conducted one-way deterministic sensitivity analyses (SA) to account for potential variability in the inputs.

RESULTS

- Based on the observed three-year mean incidence of 40.6% in the total population[4], we estimated the mean annual direct cost of influenza at $280million. Inpatient (3.7% of flu cases) and symptomatic treatment represent 60% ($167million), and 21% ($58million) of those resources, respectively. Low observed vaccination coverage rates (2.4%, VCR)[4], equate to 3.9% (flu vaccines acquisition costs) of the direct annual costs.
- From a societal perspective, additional $54million related to productivity losses were estimated.[4]
- Sensible cost drivers were the incidence of disease, the cost of hospitalization and the hospital duration stay, as estimated in the SA.

Figure 1: Study design

Table 2: Local costs data[5]

Type of cost	Cost per case*
Symptomatic treatment	$ 8.30
Hospitalizations	$ 150.00
Average transport to hospital	$ 1.00
Loss of productivity	$ 68.00

*** Echange rate : Fx=100 DZD/$**

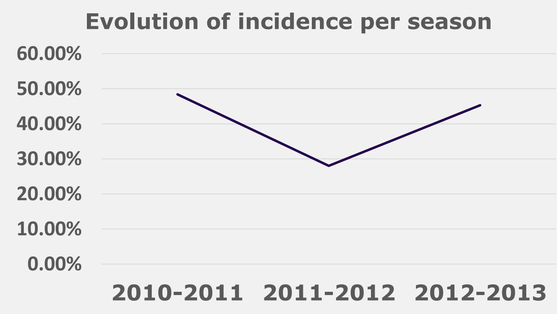
"The costing data used come from a private database (IMS) The cost of hospitalization was estimated in a local study"

Table 1: Flu economic burden study parameters

Study parameter	Input
Population	Average Algerian population per year (2010 to 2013)
Perspective	MoH and Societal
Time horizon	1 Year
Vaccination efficacy	Not taken into consideration (incidence of vaccinated and unvaccinated subjects)
Costs	Direct • Medical: Symptomatic treatment and hospitalization • Non-medical: Transport to hospitals Indirect • Loss of productivity

Table 3: Flu epidemiological data[4]

Flu seasons	Incidence
2010/2011	48.4%
2011/2012	28%
2012/2013	45.3%



Average % of hospitalizations	**3.7%**

Figure 2: Economic Burden of Flu per year in Algeria in Million$

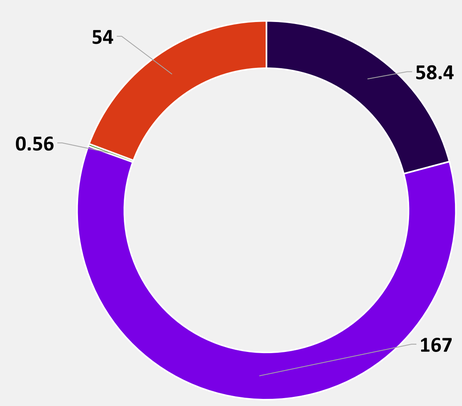
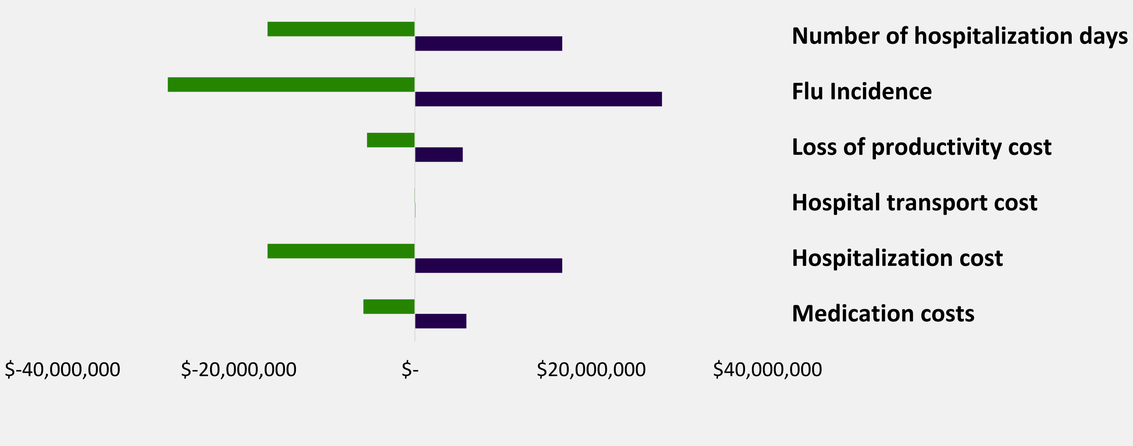


Figure 3: One way sensitivity Analysis



LIMITATIONS

This study was based on historical data[4] (before COVID-19), the only local detailed data published on influenza epidemiology (hospitalizations, indirect costs, antibiotic use)

An analysis with more recent data (post COVID-19) will be carried out, including the pharmaco-economic impact of the introduction of improved vaccines (e.g. high-dose influenza vaccine) and increased vaccine coverage on the incidence and burden of hospitalizations.

CONCLUSIONS

Our analysis revealed that hospitalizations, followed by symptomatic treatment constitute the primary cost-drivers of typical seasonal influenza expenditure in Algeria. Presented figures aim to support efficient allocation of resources and informed decision-making. Future research studying the effects of increased VCR, particularly among vulnerable groups such as the elderly and immunocompromised, with more recent data is needed.

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CONFLICT OF INTEREST:
AA, JBH and AL: Sanofi — employee, may hold stock and/or stock options in the company.

MG has no conflicts of interest to disclose.

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