

# **THE MISSING DATA INFRASTRUCTURE FOR COST EFFICIENCY ANALYSIS IN LEBANON**

Salim M. Adib, MD, DrPH  
Health Insight  
April 2018

# **WHAT ARE THE PROCESSES REQUESTED FOR PUBLIC HEALTH DECISIONS?**

## **Cost-benefit analysis (CBA)**

In CBA, benefits are expressed in money (or other units) saved using an intervention, compared to the cost of “doing nothing”.

## **Cost-effectiveness analysis (CEA)**

Two or more interventions have to be compared to determine which is more efficient, i.e. which one can deliver more outcomes at lower costs per unit.

**In Lebanon today, most analyses needed are CBA**

# **WHAT ARE THE DATA CATEGORIES REQUIRED FOR PUBLIC HEALTH DECISIONS?**

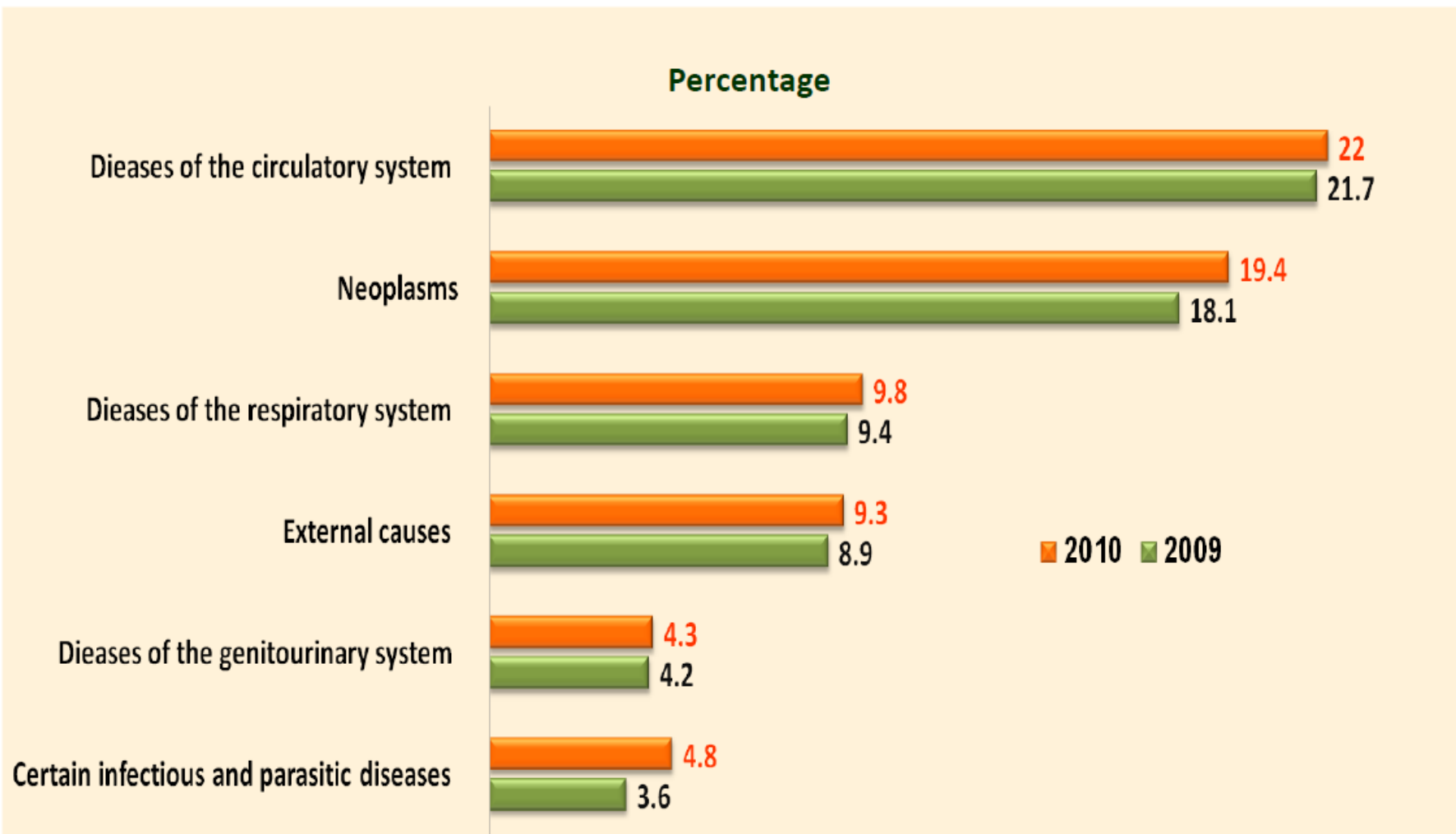
- 1. Surveillance data (disease-based)**
- 2. Utilization data (event-based)**
- 3. Population data (person-based)**

# 1995



Epidemiological Surveillance Unit  
(ESU)

# Results: Top underlying causes of reported deaths, by ICD-10 chapters, males, Lebanon, 2009-2010



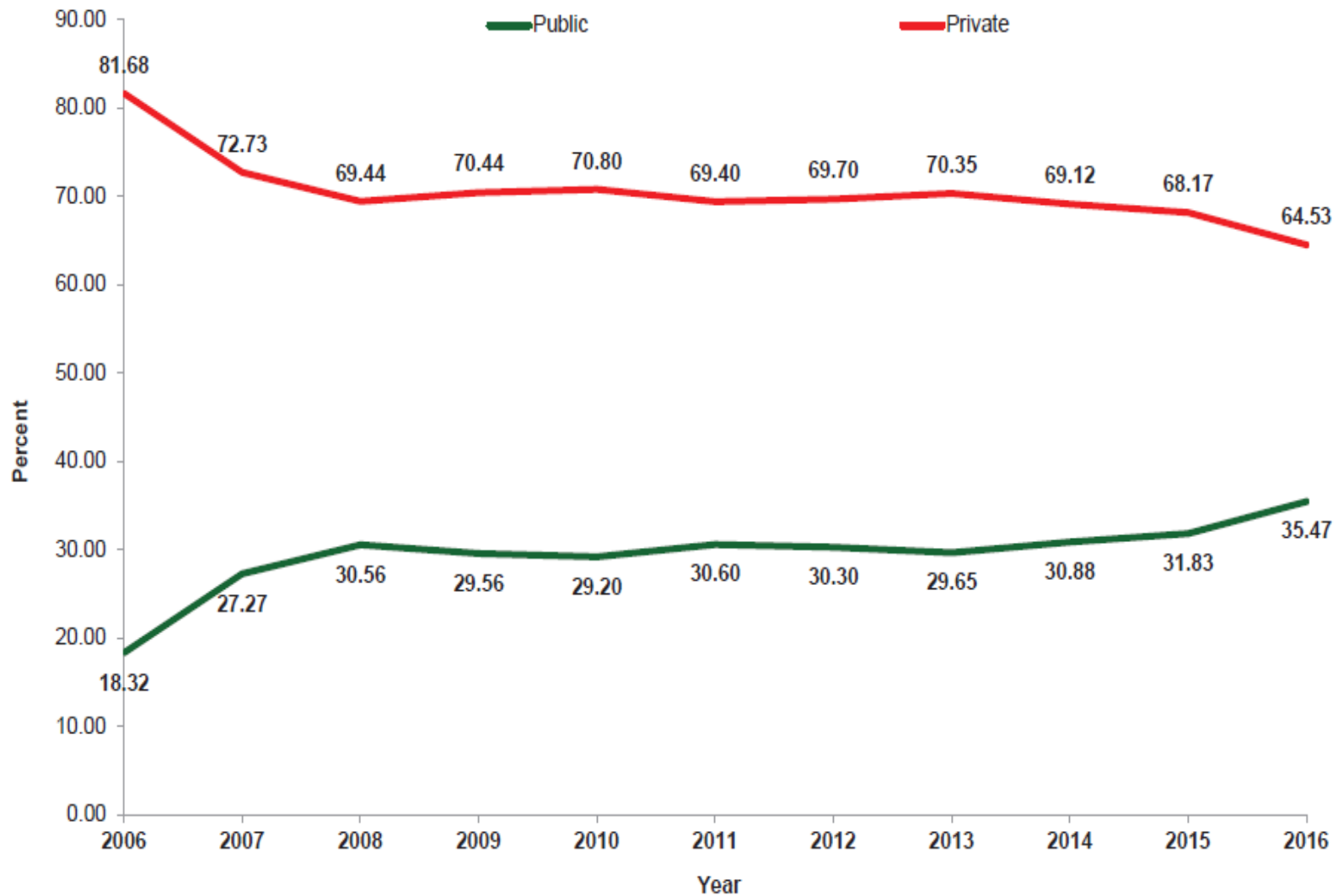
## **Surveillance data (disease-based)**

- Lacks information on risk factors
- Lacks linkage with death certificates
- Only communicable diseases and cancer



## **2. Utilization data (event-based)**

**Graph C.5: The evolution of MOPH subsidized admissions in public and private hospitals between 2006 and 2016**



Source: Hospital billing database, IT department, MOPH.

## **Utilization data (event-based)**

- Time delays
- Data derived mostly from the public sector
- Limited financial analysis

# **3. Population data (person-based)**

<b>INDICATOR</b>	<b>YEAR</b>	<b>UNIT</b>	<b>VALUE</b>
<i>Total population</i>	<i>2013</i>	<i>1000 citizens</i>	<i>4,168</i>
<i>Population growth rate</i>	<i>2013</i>		<i>1.5</i>
<i>Life expectancy</i>	<i>2012</i>	<i>Years</i>	<i>81.24</i>
<i>Population &lt;15</i>	<i>2013</i>	<i>Percent</i>	<i>24.6</i>
<i>Population &gt; 65</i>	<i>2013</i>	<i>Percent</i>	<i>9.7</i>
<i>GDP per Capita</i>	<i>2012</i>	<i>US \$</i>	<i>10,500</i>
<i>OOP % THE</i>	<i>2012</i>	<i>Percent</i>	<i>37.34</i>
<i>Physicians</i>	<i>2014</i>	<i>10 000 pop</i>	<i>30.67</i>
<i>Nurses</i>	<i>2014</i>	<i>10 000 pop</i>	<i>29.59</i>

# Population data

- Beware of international sites
- National sites (eps. CAS) incomplete on rates

**WHAT HAPPENS WHEN DATA ARE  
NOT AVAILABLE FOR CBA?**

**DECISIONS ARE MADE AND/OR  
MAINTAINED WITHOUT CBA**

# **PNEUMOCOCCAL VACCINE ADDITION 2017**

At a time when the world is going through controversy on too many vaccines, 3 new shots were added to the schedule of infants in Lebanon.



# PNEUMOCOCCAL VACCINE ADDITION 2017

6 مرّات لعمر السنة  
بتحميهم من 10 أمراض

## الطعم قبل كل شي:

- الطعم يحمي ولادنا
- الطعم مضمون الجودة ومحفوظ بسلسلة تبريد نموذجية
- الطعم مجاني: وإذا غير هيك خبزنا على **1214**
- الطعم يبعطيه فريق مدرب من الأخصائيين بكل المراكز الصحية والمستوصفات

السنة الثّانية	5-4 سنوات	12-10 سنوات	18-16 سنوات
رقم الزيارة	8	9	10
18 أشهر	5-4 سنوات	12-10 سنوات	18-16 سنوات
إسم اللقح			
<ul style="list-style-type: none"> <li>• حصة أبو كعب.</li> <li>• حصة ألمانية (MMR)</li> <li>• شلل فموي</li> <li>• ثلاثي</li> <li>• خماسي</li> </ul>	<ul style="list-style-type: none"> <li>• شلل فموي</li> <li>• ثلاثي</li> </ul>	<ul style="list-style-type: none"> <li>• شلل فموي</li> <li>• ثلاثي</li> </ul>	<ul style="list-style-type: none"> <li>• شلل فموي</li> <li>• ثلاثي</li> </ul>
الوقاية من الأمراض			
<ul style="list-style-type: none"> <li>• حصة أبو كعب.</li> <li>• حصة ألمانية</li> <li>• شلل الأطفال</li> <li>• صغيرة ب، خانوق، كراز.</li> <li>• هانفلونزا ب</li> </ul>	<ul style="list-style-type: none"> <li>• شلل الأطفال</li> <li>• خانوق، شاهوق، كراز</li> </ul>	<ul style="list-style-type: none"> <li>• شلل الأطفال</li> <li>• خانوق، كراز</li> </ul>	<ul style="list-style-type: none"> <li>• شلل الأطفال</li> <li>• خانوق، كراز</li> </ul>

السنة الأولى					
رقم الزيارة					
6	5	4	3	2	1
12 أشهر	9 أشهر	6 أشهر	4 أشهر	شهران	عند الولادة
إسم اللقح					
<ul style="list-style-type: none"> <li>• حصة أبو كعب.</li> <li>• حصة ألمانية (MMR)</li> <li>• المكورات</li> <li>• الرؤية المقترن (PCV13)</li> </ul>	<ul style="list-style-type: none"> <li>• حصة</li> </ul>	<ul style="list-style-type: none"> <li>• شلل فموي</li> <li>• المكورات</li> <li>• الرؤية المقترن (PCV13)</li> <li>• خماسي</li> </ul>	<ul style="list-style-type: none"> <li>• شلل فموي</li> <li>• المكورات</li> <li>• الرؤية المقترن (PCV13)</li> <li>• خماسي</li> </ul>	<ul style="list-style-type: none"> <li>• شلل عضلي</li> <li>• خماسي</li> </ul>	<ul style="list-style-type: none"> <li>• صغيرة ب</li> </ul>
الوقاية من الأمراض					
<ul style="list-style-type: none"> <li>• حصة أبو كعب.</li> <li>• حصة ألمانية</li> <li>• ذات الرئة</li> <li>• التهاب السحايا</li> </ul>	<ul style="list-style-type: none"> <li>• حصة</li> </ul>	<ul style="list-style-type: none"> <li>• شلل الأطفال</li> <li>• ذات الرئة</li> <li>• التهاب السحايا</li> <li>• صغيرة ب، خانوق، شاهوق، كراز، هانفلونزا ب</li> </ul>	<ul style="list-style-type: none"> <li>• شلل الأطفال</li> <li>• ذات الرئة</li> <li>• التهاب السحايا</li> <li>• صغيرة ب، خانوق، شاهوق، كراز، هانفلونزا ب</li> </ul>	<ul style="list-style-type: none"> <li>• شلل الأطفال</li> <li>• صغيرة ب، خانوق، شاهوق، كراز، هانفلونزا ب</li> </ul>	<ul style="list-style-type: none"> <li>• صغيرة ب</li> </ul>

# PNEUMOCOCCAL VACCINE ADDITION 2017

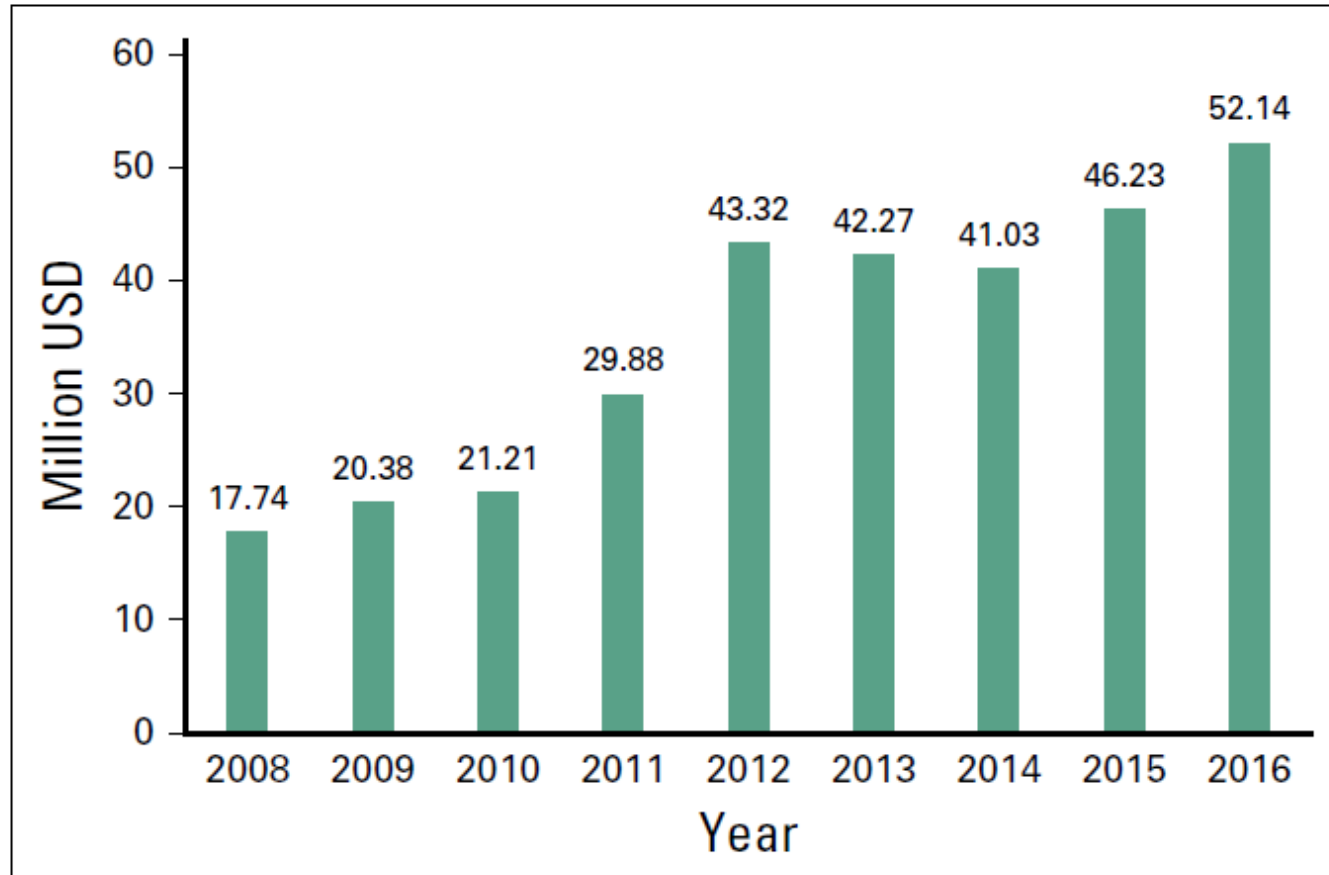
No attempts were made to evaluate the CB ratio of this addition

- No surveillance data regarding the morbidity or mortality of pneumococcal infections in children age <2 (or in the elderly), to assess the current burden of the infection in Lebanon.
- Based on the incidence of invasive pneumococcal infection cases in <5 year-olds in the USA, the estimated number of cases in Lebanon should be about 200 cases per year.

# PNEUMOCOCCAL VACCINE ADDITION 2017

- The 3-shot regimen costs 250 USD per child (without discount). For the 90,000 infants born annually, the cost is potentially 22 million USD per year (increasing with higher birth rates)!
- The CBA would roughly indicate that the cost of avoiding pneumococcal infection in Lebanon would be about 110,000 USD per avoided case. Would the treatment of that case cost so much?
- The pharmaceutical agent stopped bringing the vaccine for the elderly to concentrate on that of infants...
- Would this vaccination policy be applied if a CBA was possible AND required?

**Meanwhile, drug procurement costs are reaching non-sustainable levels, and savings are vital!**



**THE ABSENCE OF CONSISTENT,  
ACCESSIBLE, WELL-TARGETED DATA FOR  
CBA THREATENS THE ENTIRE PUBLIC  
HEALTH CARE SYSTEM IN LEBANON**

1. A comprehensive data architecture must be created under MOPH to pool in the 3 categories of data required
2. In parallel, population-based data must be generated to complement what is lacking through MOPH data flows, especially regarding the qualitative impact of poor health on individuals and families (population cohort?)
3. The attention of the political class should be attracted to the disruptive effect of missing data and subsequent haphazard implementation of costly/non-beneficial programs.

**THANK YOU**