ADVANTAGES AND PITFALLS BY AUTOMATED SURVEILLANCE OF INFLUENZA USING NATIONAL HEALTH CARE DATABASES

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INFLUENZA

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Has the annual epidemic started?

How intense is it?

How severe is it?

Who are at risk?

When will it peak?

Subtyping
Mutations
Resistancy
etc.

Is the vaccine effective?

WE PRACTICE FOR THE NEXT PANDEMIC !

DIGITAL TRANSFORMATION

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- The development has been driven by

Better data to assess severity

Increased digitalization with access to real-time electronic health care databases

FACILITATORS IN DENMARK

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Unique personal identifier
used for all health care contacts

Legislation that allows data linkage

(Increasing demand for specification since the GDPR)

ELECTRONIC DATA CAPTURE

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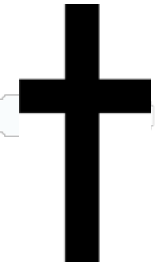
Microbiology database
influenza PCR test results

National Patient Register
Hospitalisations
ICT procedure codes
Diagnoses of previous hospitalisations

Patients tested for influenza

The Danish Vaccination Register
Date of vaccination

Administrative register
Date of death



Determine trends/intensity
Assess severity
Identify riskgroups
Estimate vaccine effectiveness

Same approach can be used for other pathogens

SURVEILLANCE BY DATA CAPTURE

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Advantages

- National data
- Electronic
- Real-time
- Valid data
- Flexible system
- Cost-efficient

Challenges/Pitfalls

- Need for new case definitions/algorithms
- Health care systems are dynamic
  - Changing testing patterns
  - Changing hospitalisation patterns
- Data access
  - (Legal)
  - Technical

CASE DEFINITIONS

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3.20. INFLUENZA

Case Classification

A. Possible case

Any person meeting the clinical criteria (ILI or ARI)

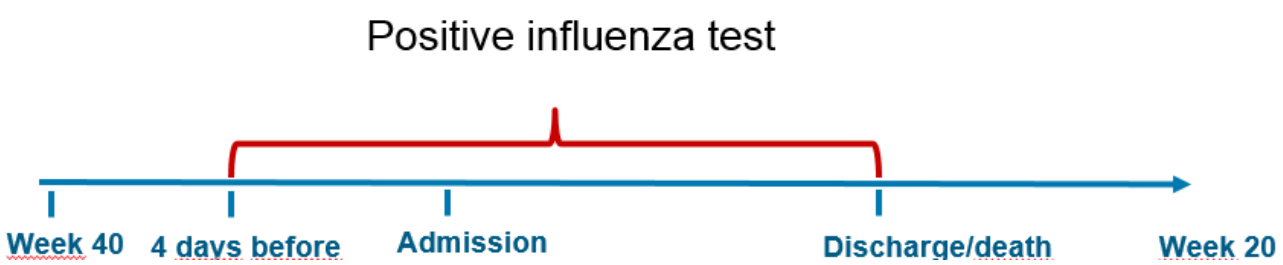
B. Probable case

Any person meeting the clinical criteria (ILI or ARI) with an epidemiological link

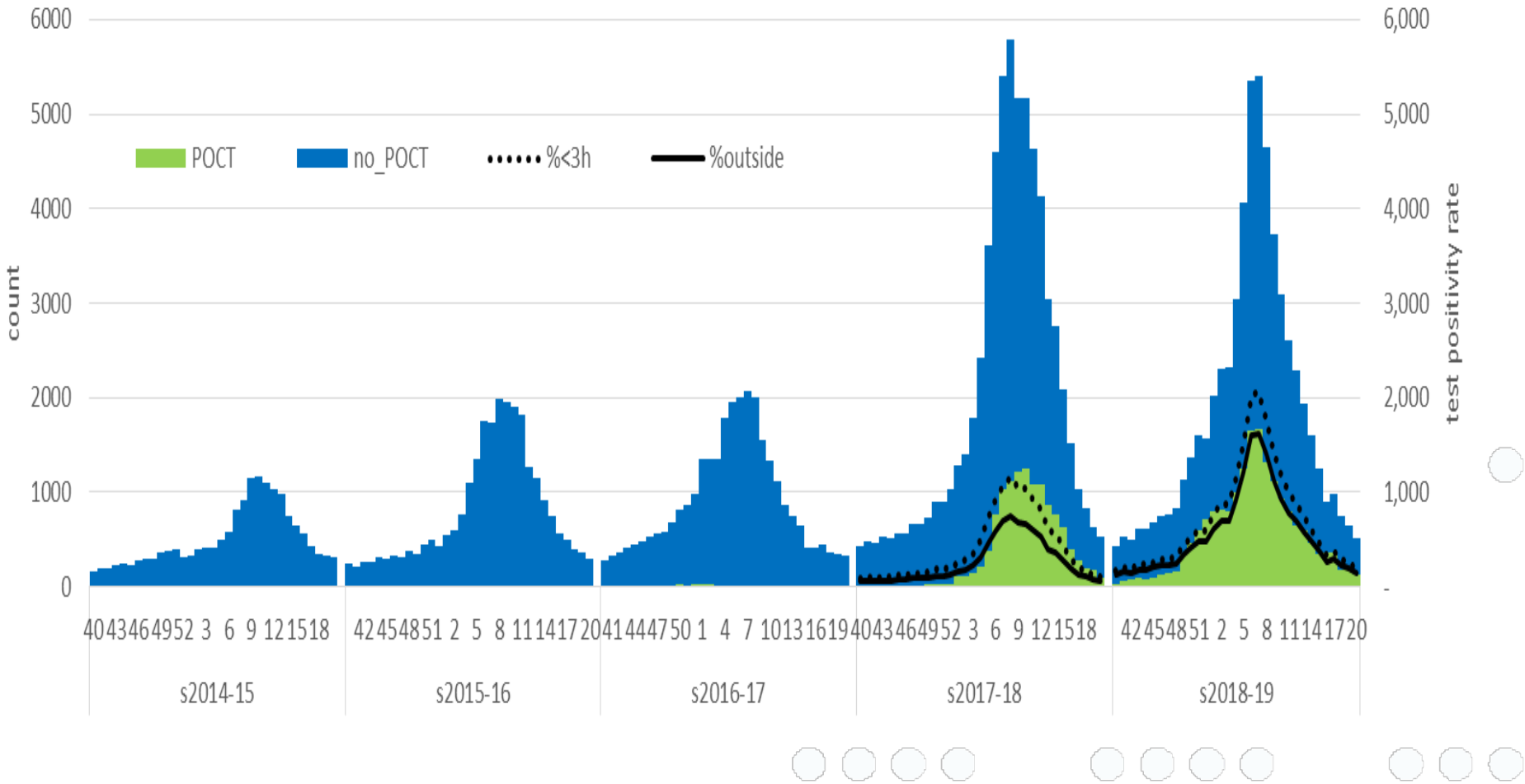
C. Confirmed case

Any person meeting the clinical (ILI or ARI) and the laboratory criteria

An influenza related hospitalisation



POINT OF CARE TESTS



HOSPITALISATIONS

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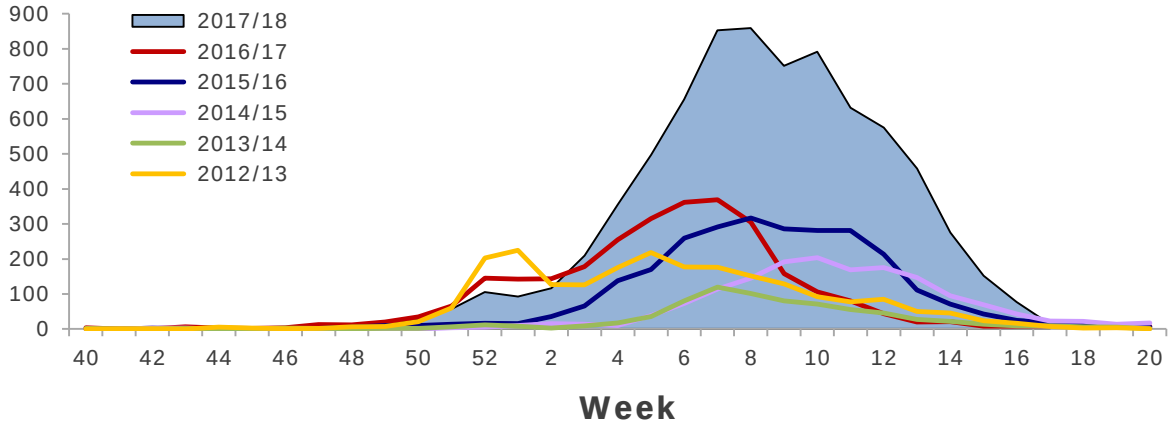
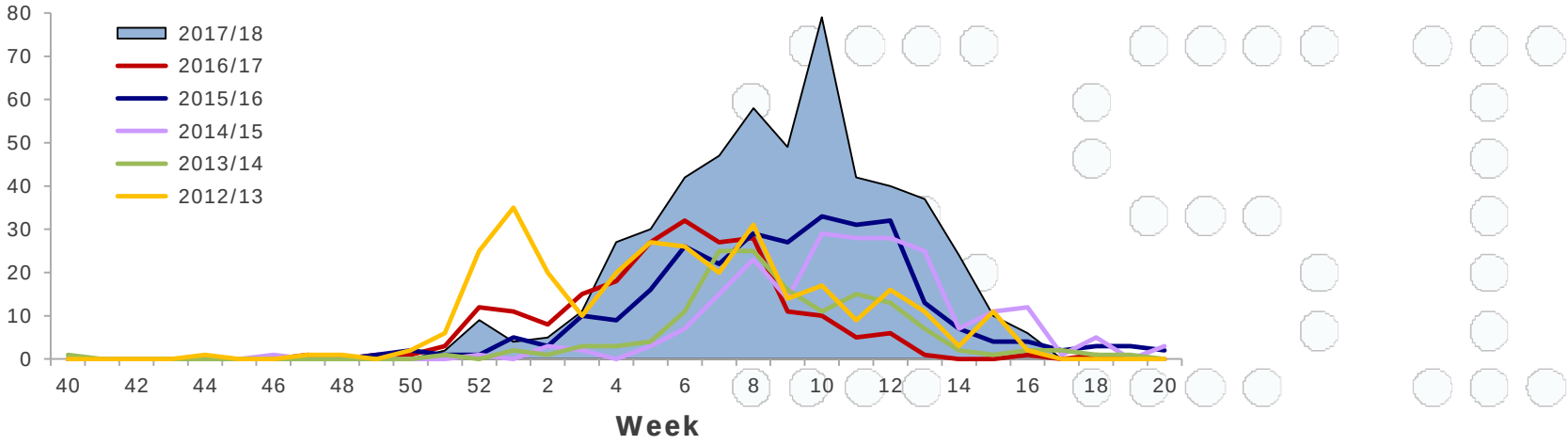
Number of patients with laboratory confirmed influenza at hospital



Number of patients with laboratory confirmed influenza at ICU



LOSS OF DATA ACCESS

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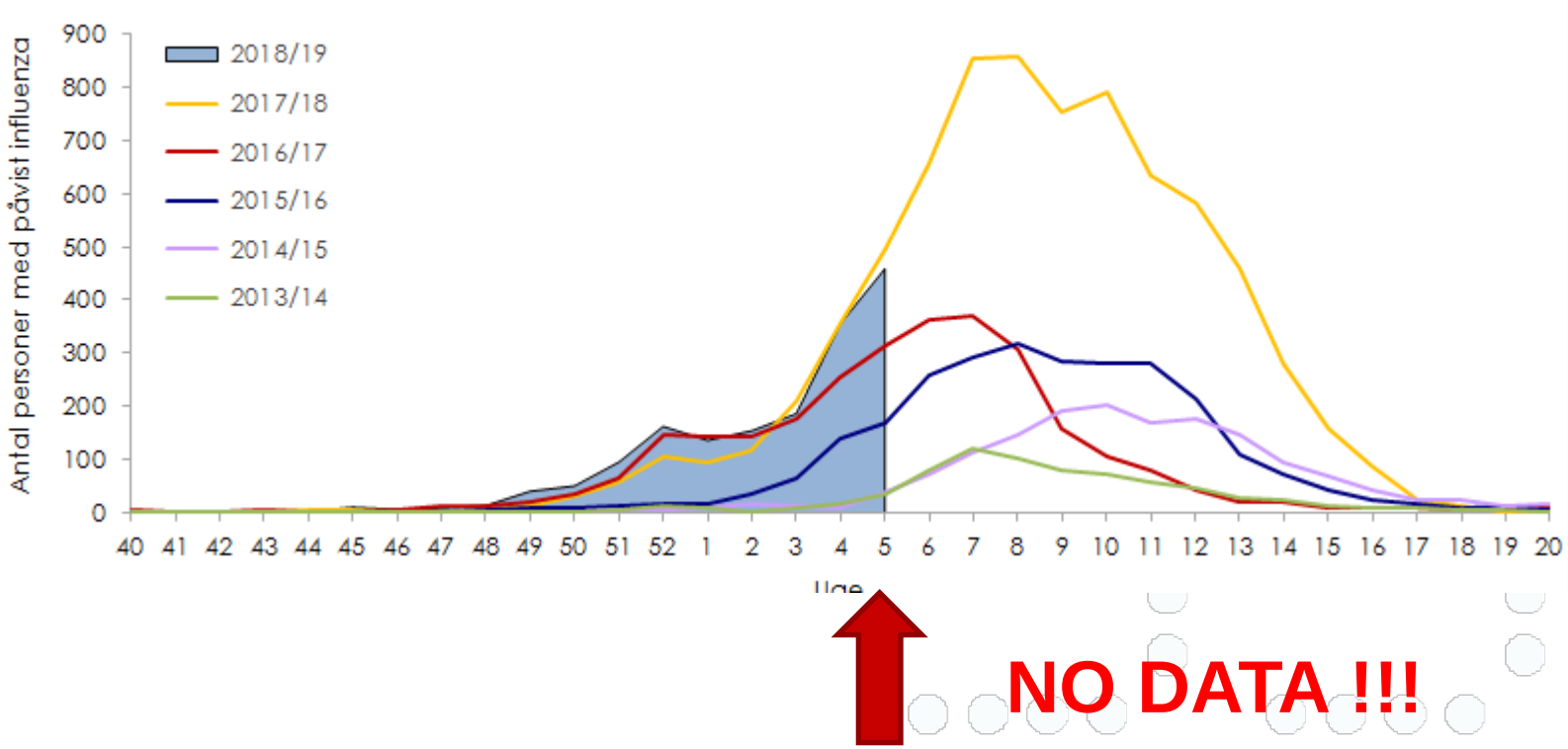
- Reconstruction of the National Discharge register

Number of patients with laboratory confirmed influenza at hospital



NO DATA !!!

CONCLUSION

- Data capture provides more timely data
- More comprehensive data
- Less resources at regional level for active reporting
- Need for more data management skills at national level
- Sensitive to changes in health care systems
  - Testing and hospitalisation patterns
- Other approaches for severity assessment
  - proportions of patients at ICU vs. hospitalised
  - proportions of deaths vs. hospitalised
  - length of stay

WE HAVE TO LEARN TO EMBRACE IMPERFECT DATA