

Evaluation of the Austrian Influenza Surveillance System for the Seasons 2004/05 - 2008/09: Results on Specificity and Representativeness



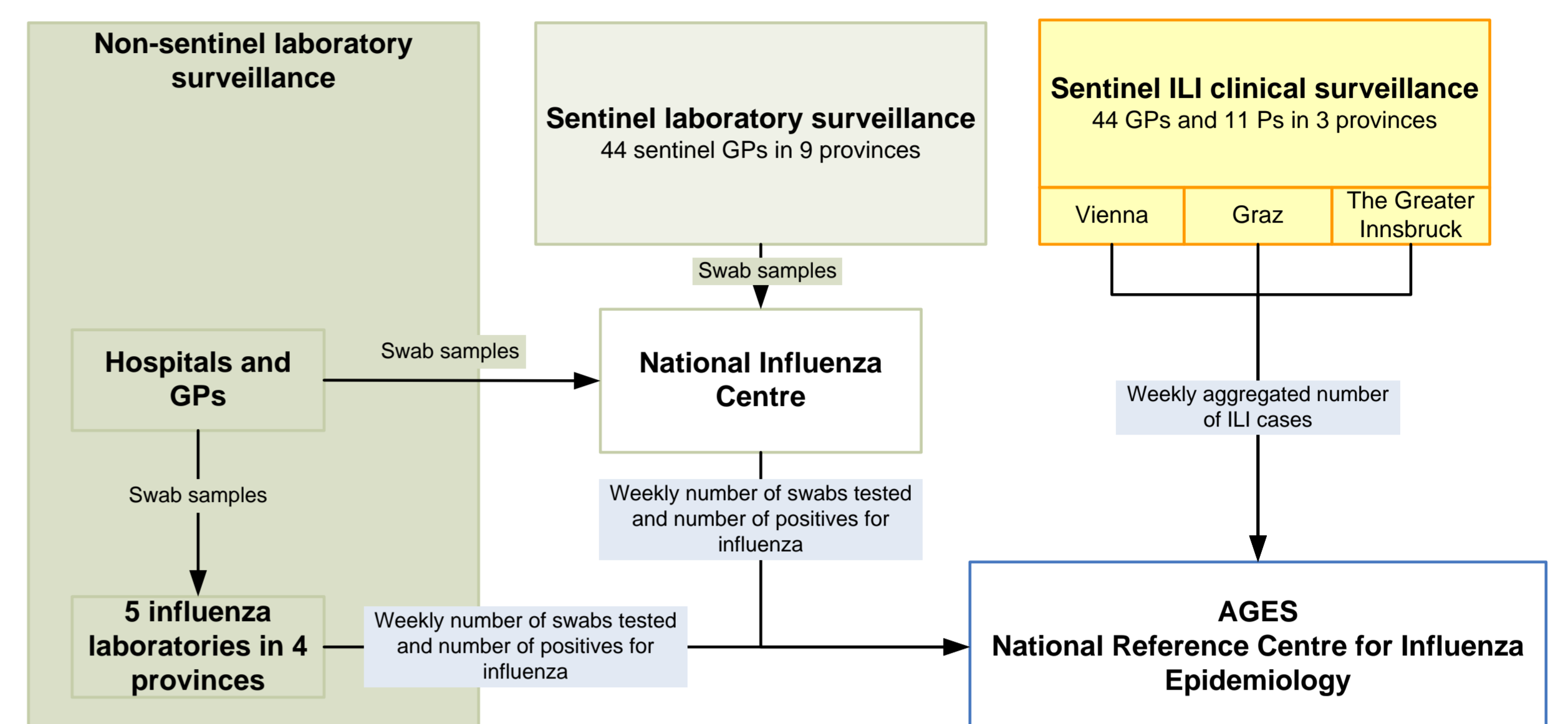
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Background

- Objectives of the surveillance system:** To estimate the burden of influenza in the Austrian population and to identify circulating strains for each season.
- The influenza surveillance relies on a clinical and a virological sentinel surveillance systems running in parallel:
 - Clinical data provided by 55 sentinel physicians from 3 surveillance regions reporting cases of influenza-like illness (ILI), following case definition given by ECDC.
 - Virological data provided by 44 sentinel physicians, sending swabs from ILI patients weekly to the National Influenza Reference Laboratory (Fig. 1).
- ILI as clinical indicator is more specific but less sensitive to measure influenza activity than acute-respiratory infection (ARI) resulting in higher clinical morbidity rates of ARI-reporting countries [1].
- Objectives of the evaluation**
 - To assess whether the surveillance system is capable of reliably estimating the burden of influenza in the Austrian population
 - To identify weakness of the system to make appropriate recommendations

Fig. 1: Flow chart of Austrian clinical and virological surveillance



Methods

- Attributes simplicity, data quality, specificity, accuracy, timeliness, acceptability, flexibility and representativeness according to US CDC guidelines were assessed; preliminary results of the assessment of the attributes specificity and representativeness of the ILI sentinel surveillance system are herein given.
- Data source:
 - Data on numbers of weekly reporting sentinel physicians, of reported clinical cases were provided by AGES,
 - national data on ILI-/ARI-incidence estimates of other European countries were provided by the WHO/EuroFlu electronic bulletin.
- Specificity**
 - A cohort study – most appropriate for testing the specificity [2] - could not be performed. ILI incidence estimates of ILI- and ARI- reporting countries were used as reference to assess whether Austrian ILI incidence estimates range at levels of other ILI-reporting countries.
- Representativeness**
 - The representativeness by age was assessed by comparing the weekly age-specific population samples (%) against the ECDC recommended [3] sample size of at least 0.5% per age-group, as this threshold gives more reliable estimates of the clinical influenza activity (ILI or ARI)
 - The regional representativeness was evaluated by examining the spatial distribution of the ILI-physicians.

Results

Specificity

Country	Clinical morbidity	
	Mean/100,000 populations	Min-max/ 100,000 populations
Austria: ILI reporting	1054.8	314.4-2519.3
Germany: ARI reporting	1165.8	609.0-2356.0
Czech: ILI reporting	63.6	12.9-271.5
Hungary: ILI reporting	160.0	24.5-691.4

–The ILI-incidence estimates of 2004/05-2008/09 seasons of Austria were:
- ranged at levels similar to ARI incidence estimates of Germany (Fig. 2)
- by 10 times higher than estimates of ILI-case reporting Czech Republic and Hungary (Fig. 3)

Fig. 2: Austrian ILI Incidence estimates vs national data on ARI incidence estimates of Germany

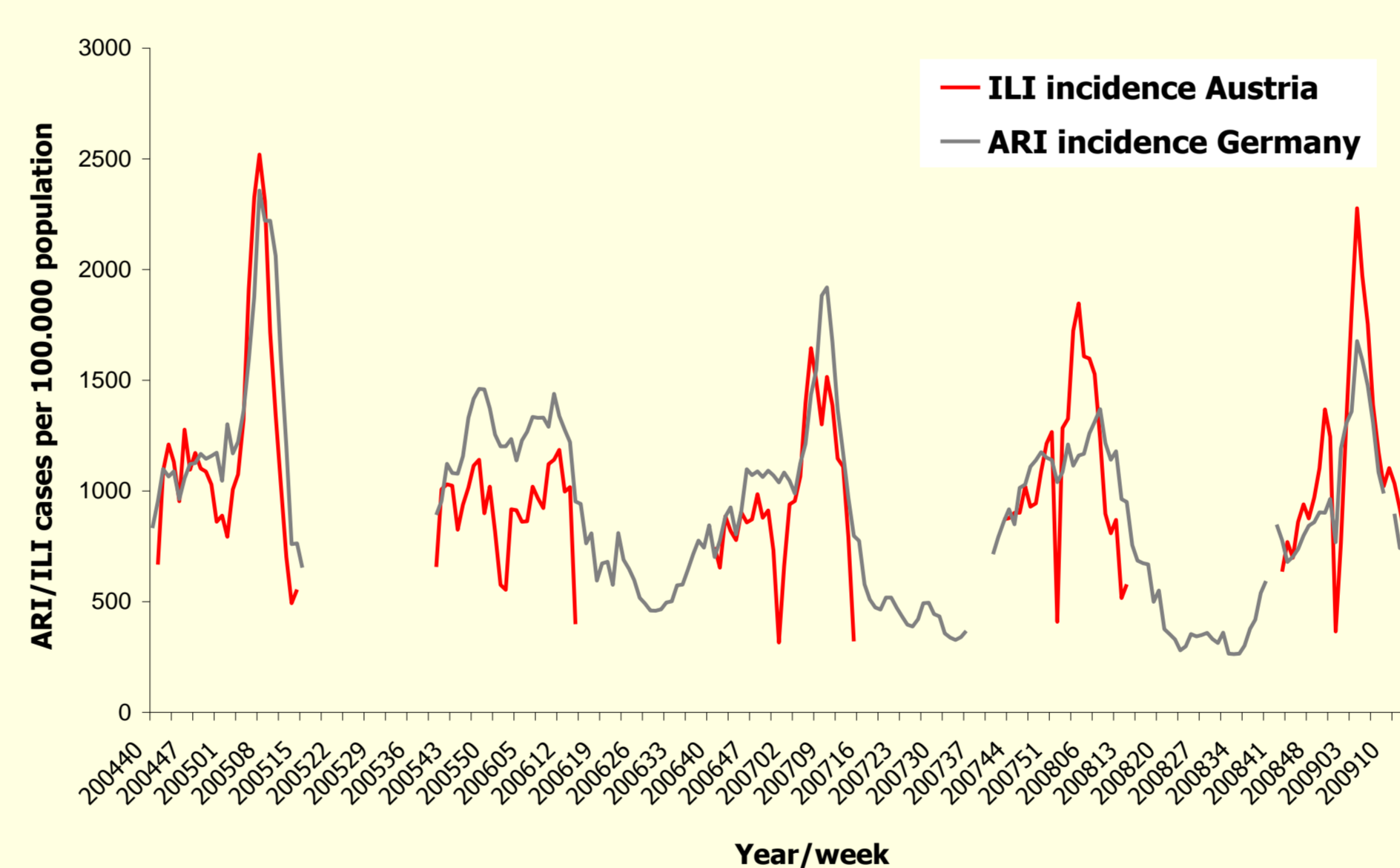
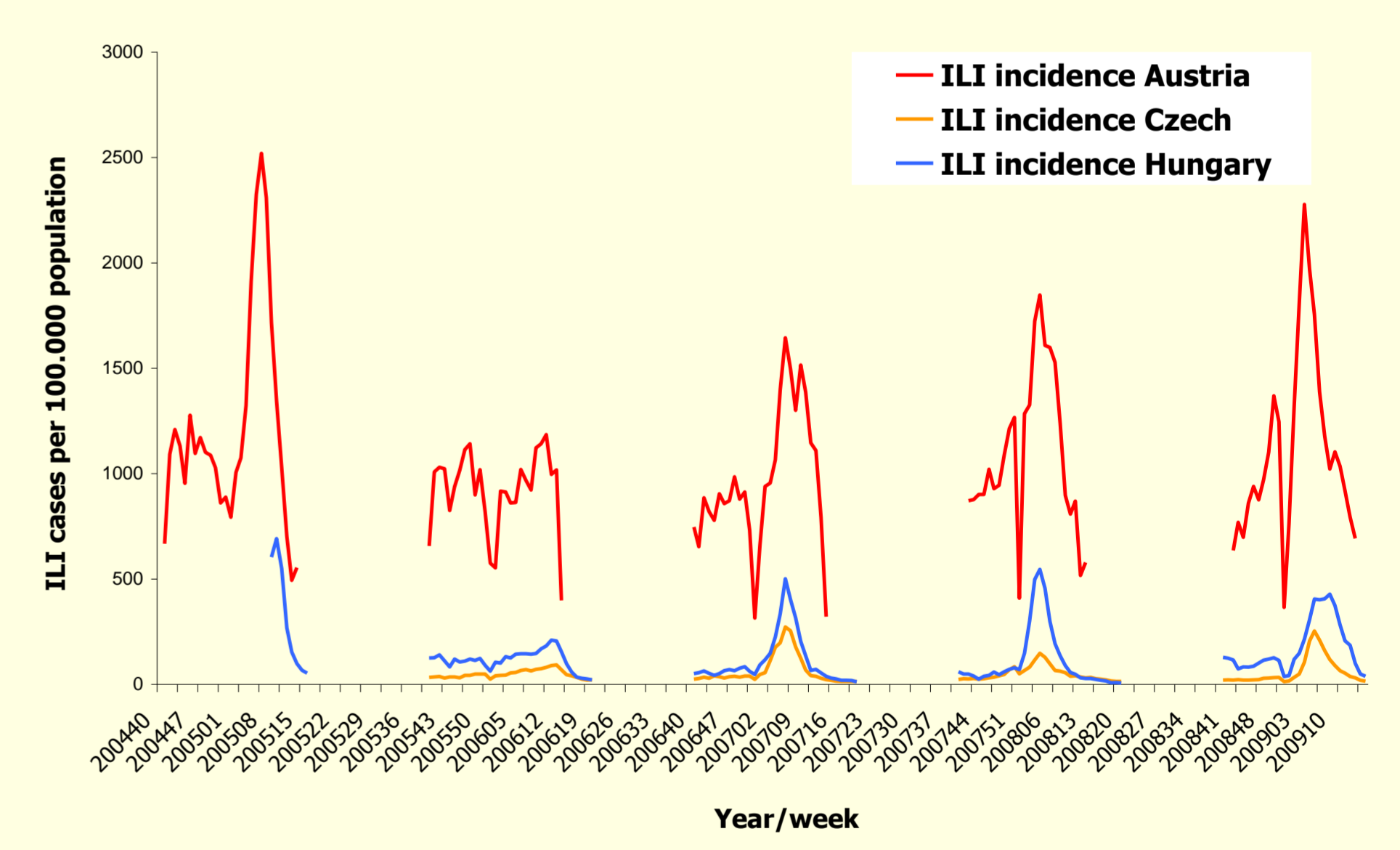


Fig. 3: Austrian ILI Incidence estimates vs national data on ILI incidence estimates of CZ, HU



Representativeness

– By age groups (Fig. 4):

	Weekly population samples	
	0-14 year-olds	≥15 year-olds
Weekly population samples < 0.5% threshold	8%	43%

– By region: the sentinel ILI physicians represent mainly urban areas. (Fig. 5)

Fig. 4: Weekly population sample (%) by age groups

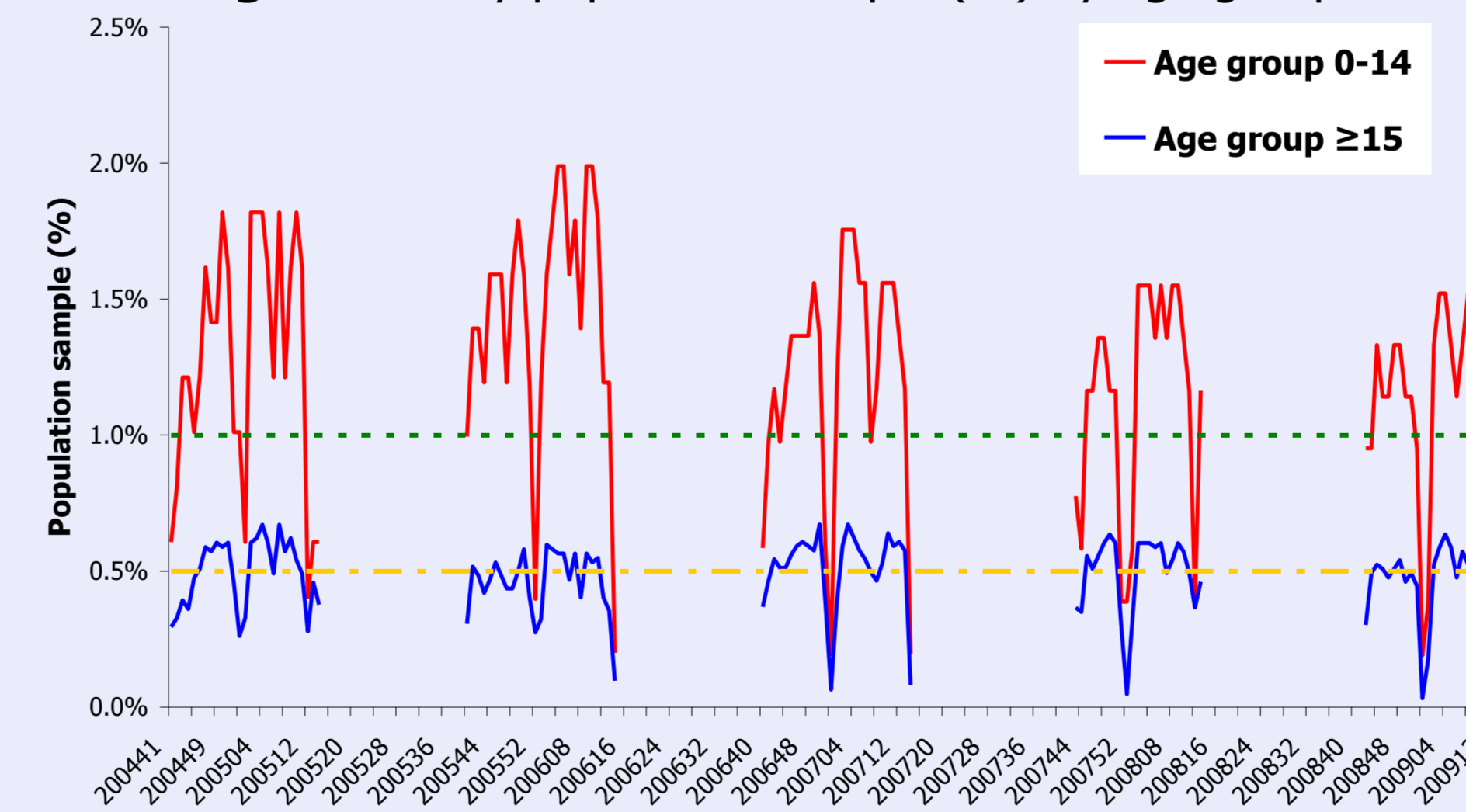
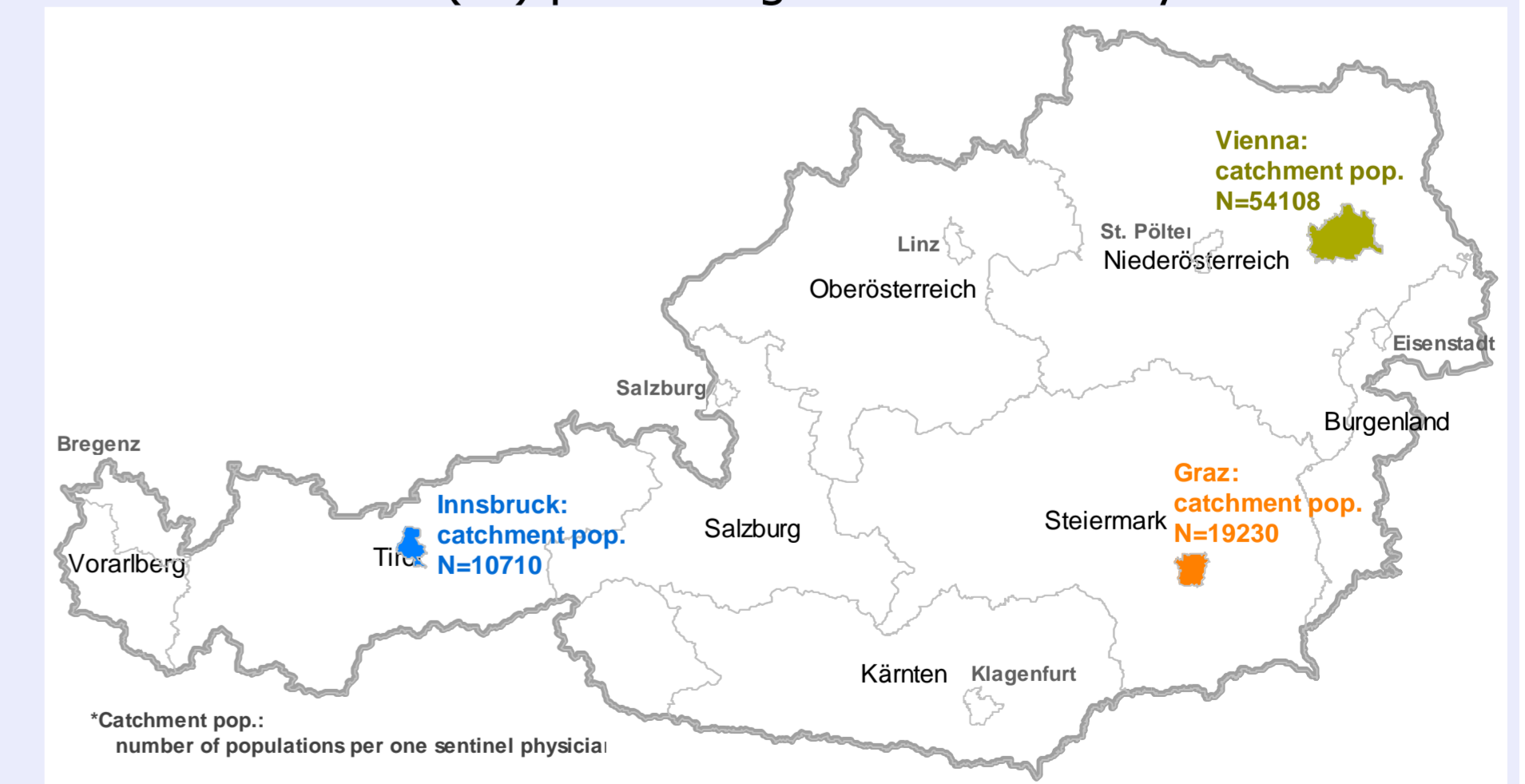


Fig. 5: Distribution of the ILI reporting sentinel GPs & Pediatricians (Ps) presenting urban areas only



Conclusions and Recommendations

- The findings revealed that the Austrian sentinel physicians follow ARI case definition rather than ILI case definition, resulting in low specificity of the clinical surveillance system relying on ILI case reporting
- Age group ≥ 15 does not comply sufficiently to the representativeness criteria – weekly population samples $> 0.5\%$ of the population under surveillance
- We recommend that cases fitting the ILI definition should be reported only, and an increase of sentinel ILI-physicians representing the ≥ 15 year-olds and the rural population is required.