

Evidence-based prioritization of infectious diseases in Belgium for public health and surveillance

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CONTEXT: National public health agencies struggle to prioritize infectious diseases for prevention and control. A multi-criteria decision analysis (MCDA) approach provides evidence-based guidance.

AIM: We aimed to apply the ECDC recommended prioritization methodology to rank infectious diseases according to their relative importance, in order to inform future surveillance and public health action in Belgium.

Results

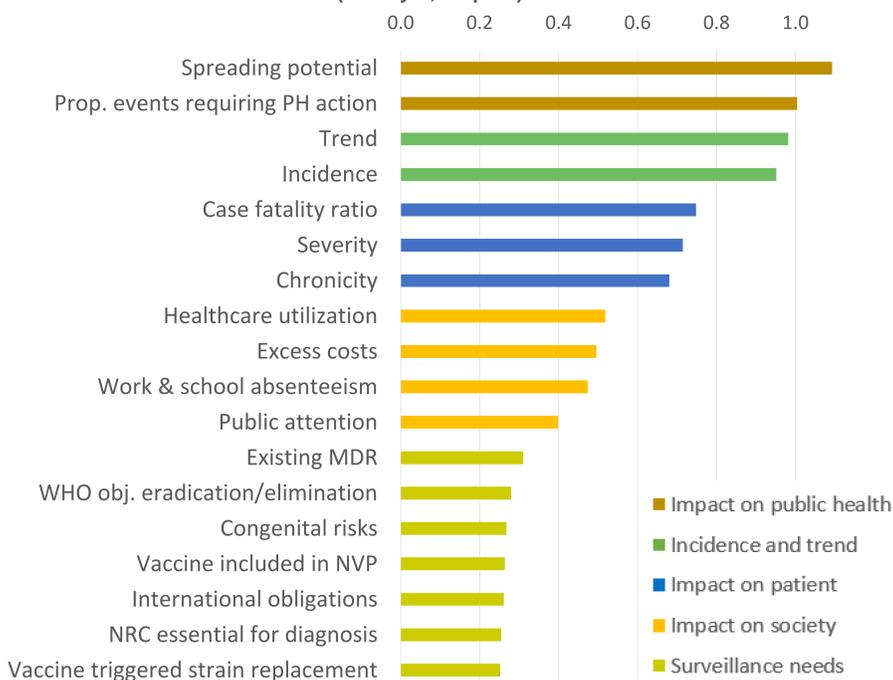
Expert responses:

- 80 experts (including 35 microbiologists, 18 clinicians, and 17 public health professionals) responded in the first survey.
- 37 experts responded in the second survey.

Weights for the criteria groups and individual criteria:

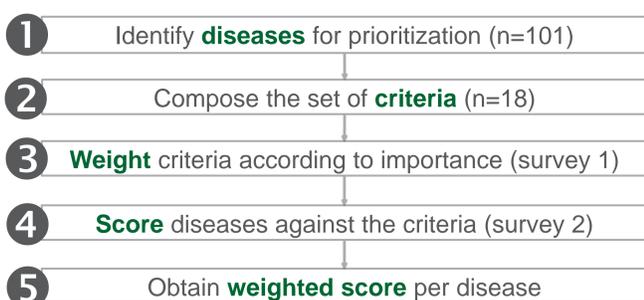
- Among the five criteria groups, the highest weights were assigned to:
 - 'impact on the patient', followed by
 - 'impact on public health' and
 - 'incidence and trend' was ranked thirdly.
- The hierarchical weights of the individual criteria are presented below:

Rescaled hierarchical weights per criteria (survey 1; step 3)



Methods

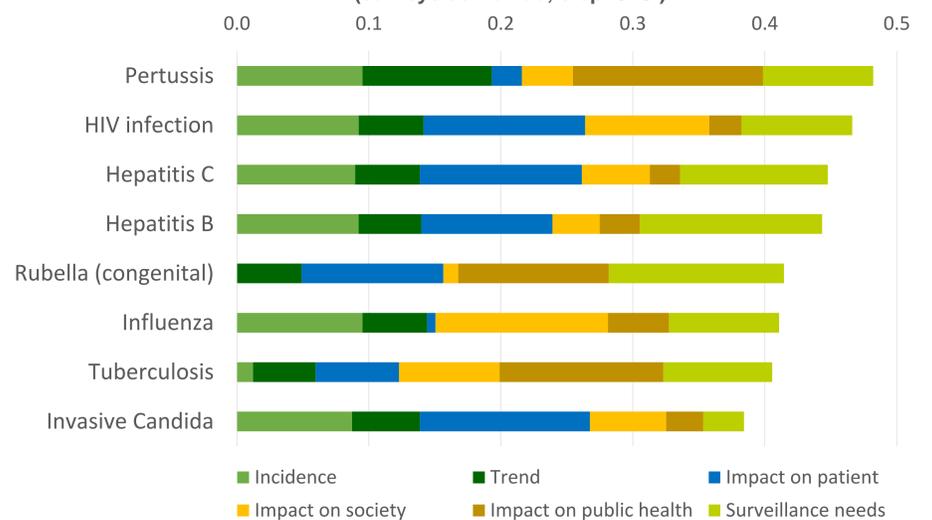
- Diseases (101) and criteria (18) selected in working groups (step 1 2).
- Multi-criteria decision analysis (MCDA) with the weighted criteria, that compose the score for each disease (step 3 4 5).
- Surveillance & background data (2013-2016) provided (step 4).



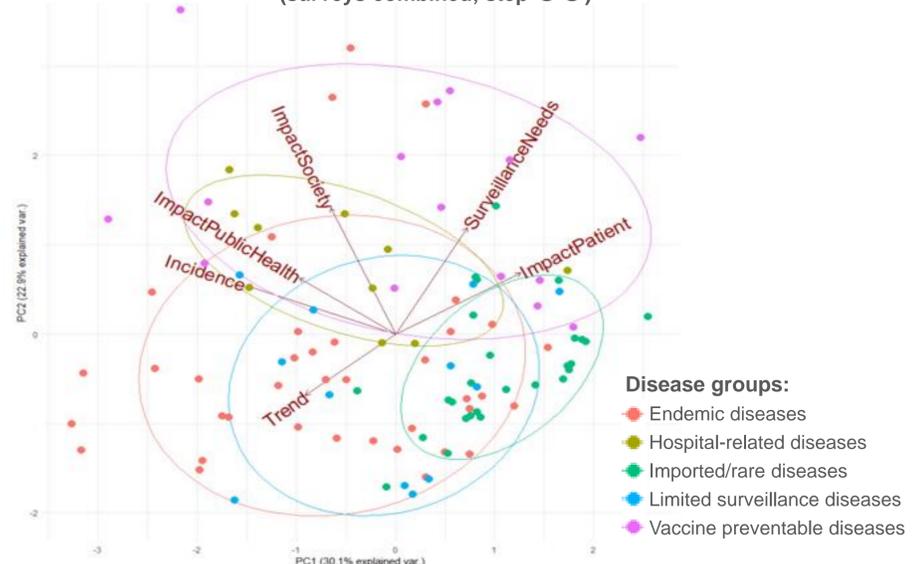
Conclusions

- This project effectively ranked infectious diseases based on context specific quantitative variables and expert perspectives.
- Pertussis, HIV, hepatitis C and B are ranked highest; are included in current public health and surveillance programs, but additional programs among risk groups might be valuable.

Composition of the final scores of the top ranked diseases (surveys combined; step 4 5)



Principal component analysis of 101 diseases based on criteria groups (surveys combined; step 4 5)



Recommendations

- We recommend further cross-reference of the obtained ranking with current and planned public health and surveillance programs, to identify potential mismatched priorities.
- We recommend to search structured feedback of experts on the current ranking in order to refine the conclusions.
- We recommend to implement this approach in a recurrent evaluation cycle of national public health priorities.

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