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Surveillance of Infectious Diseases in Denmark Part 2

Criteria for selection of disease



- Frequency
- Severity
- Costs
- Preventability
- Communicability
- Public and political interests
- International relevance

Communicable Diseases Prioritized for Surveillance and Epidemiological Research: Results of a Standardized Prioritization Procedure in Germany, 2011

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Abstract

Introduction: To establish strategic priorities for the German national public health institute (RKI) and guide the institute's mid-term strategic decisions, we prioritized infectious pathogens in accordance with their importance for national surveillance and epidemiological research.

Methods: We used the Delphi process with internal (RKI) and external experts and a metric-consensus approach to score pathogens according to ten three-tiered criteria. Additional experts were invited to weight each criterion, leading to the calculation of a median weight by which each score was multiplied. We ranked the pathogens according to the total weighted score and divided them into four priority groups.

Results: 127 pathogens were scored. Eighty-six experts participated in the weighting; "Case fatality rate" was rated as the most important criterion. Twenty-six pathogens were ranked in the highest priority group; among those were pathogens with internationally recognised importance (e.g., Human Immunodeficiency Virus, *Mycobacterium tuberculosis*, Influenza virus, Hepatitis C virus, *Neisseria meningitidis*), pathogens frequently causing large outbreaks (e.g., *Campylobacter* spp.), and nosocomial pathogens associated with antimicrobial resistance. Other pathogens in the highest priority group included *Helicobacter pylori*, Respiratory Syncytial Virus, Varicella zoster virus and Hantavirus.

Table 1. Prioritisation criteria and definitions of the corresponding scores.

| No. | Criteria | Scoring values | | |
|-----|---|--|---|--|
| | | -1 | 0 | +1 |
| 1 | Incidence (including illness and symptomatic infection) | <1/100 000 | 1–20/100 000 | >20/100 000 |
| 2 | Work and school absenteeism* | This pathogen causes a negligible proportion of absenteeism due to an infectious illness | This pathogen causes a small to moderate proportion of absenteeism due to an infectious illness | This pathogen causes a large proportion of absenteeism due to an infectious illness |
| 3 | Health care utilization (primary care and hospitalisation)* | This pathogen causes a negligible proportion of health care utilization due to an infectious illness | This pathogen causes a small to moderate proportion of health care utilization due to an infectious illness | This pathogen causes a large proportion of health care utilization due to an infectious illness |
| 4 | Chronicity of illness or sequelae* | This pathogen causes a negligible amount of chronicity or persistent sequelae (estimate prevalence of those being <0.1/100 000 population) | This pathogen causes a small to moderate amount of chronicity or persistent sequelae (estimated prevalence of those being 0.1–1.0/100 000 population) | This pathogen causes a large amount of chronicity or persistent sequelae (estimated prevalence of those being >1.0/100 000 population) |
| 5 | Case fatality rate** | <0.01% | 0.01–1% | >1% |
| 6 | Proportion of events requiring public health actions (see Note 2 for explanation)** | A small proportion of the estimated total number of events or exceptional events require public health actions (<25%) | A moderate to large proportion of the estimated total number of events require public health actions (25–75%) | Almost all of the estimated total number of events require public health actions (>75%) |
| 7 | Trend** | Diminishing incidence rates | Stable incidence rates | Increasing incidence rates |
| 8 | Public attention (including political agenda and public perception)* | Risk perception of this pathogen by general public is low and it is not high on political agenda | Risk perception of this pathogen by general public is moderate and informal political expectations/agenda is present | This pathogen implies international duties or its risk perception by general public is high or it is explicitly high on political agenda |
| 9 | Prevention possibilities and needs (including vaccines)** | Preventive potential seems low or the disease does not require prevention or effective prevention strategies are well-established; no need for significant strategy modification | Measures for prevention are established but there is need to improve their effectiveness | Need for prevention is established but currently no effective preventive measures are available |
| 10 | Treatment possibilities and needs (including AMR)** | Medical treatment is rarely necessary or effective regimens are well-established; no need for significant modifications | Medical treatment regimens are established but there is need to improve their effectiveness | Need for medical treatment is established but currently no effective treatment is available or AMR limits treatment options |



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TECHNICAL DOCUMENT

ECDC tool for the prioritisation of infectious disease threats

Handbook and manual

The aim of the current revision

- To assemble the current legislation into one act
- To mature the surveillance system for "digital surveillance"
- To target information to those who need to know
- Ensure flexibility and improve possibilities of adjustment

The current revision

- Criteria include:
 - Severity (death, disability)
 - Preventability
 - Outbreak control
 - Vaccination
 - Counselling
 - To follow trends
 - To follow disease burden
 - To determine groups at risk
 - Legislation (WHO-IHR, EU ECDC or zoonosis directive)
 - Invasion (environment, climate, bioterror)
 - Microbiological evolution and resistance

Process

- Project group
 - Danish health and medicines agency
 - Including the public health officers
 - Statens Serum Institut (SSI)
- SSI working group
 - Disease experts
- Large reference group of stakeholders
 - Including the learned societies



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Some final comments !

Surveillance data are never perfect !

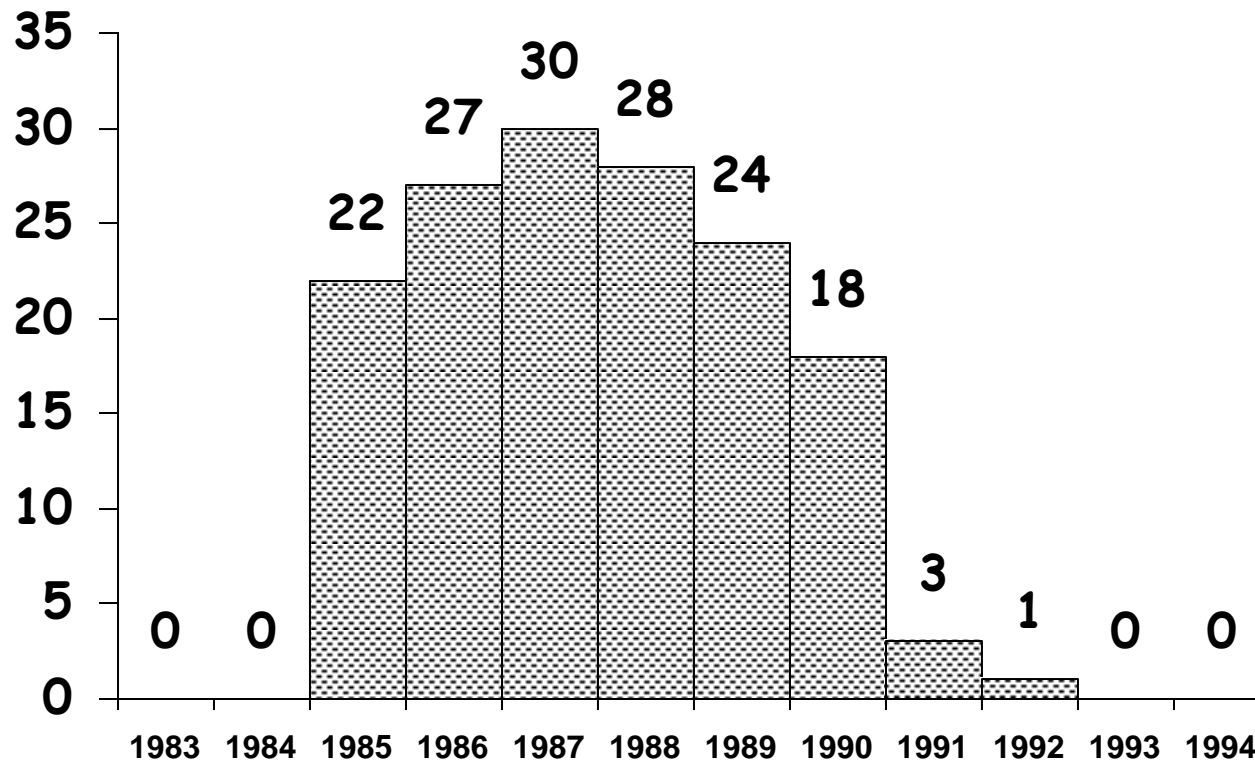
- Health care behaviour
- Diagnostic methods
- Screening and intensified awareness
- Reporting propensity and assessment bias
- Delays
- Incomplete notifications
- Double reporting

Is there an outbreak ?

- Establish a provisional case-definition:
 - Clinical case-definition
 - Laboratory confirmation
- Is the occurrence higher than expected:
 - Seasonal changes
 - Changes in population at risk
 - New diagnostic methods
 - New reporting procedures
 - New staff
 - Public interest or concern

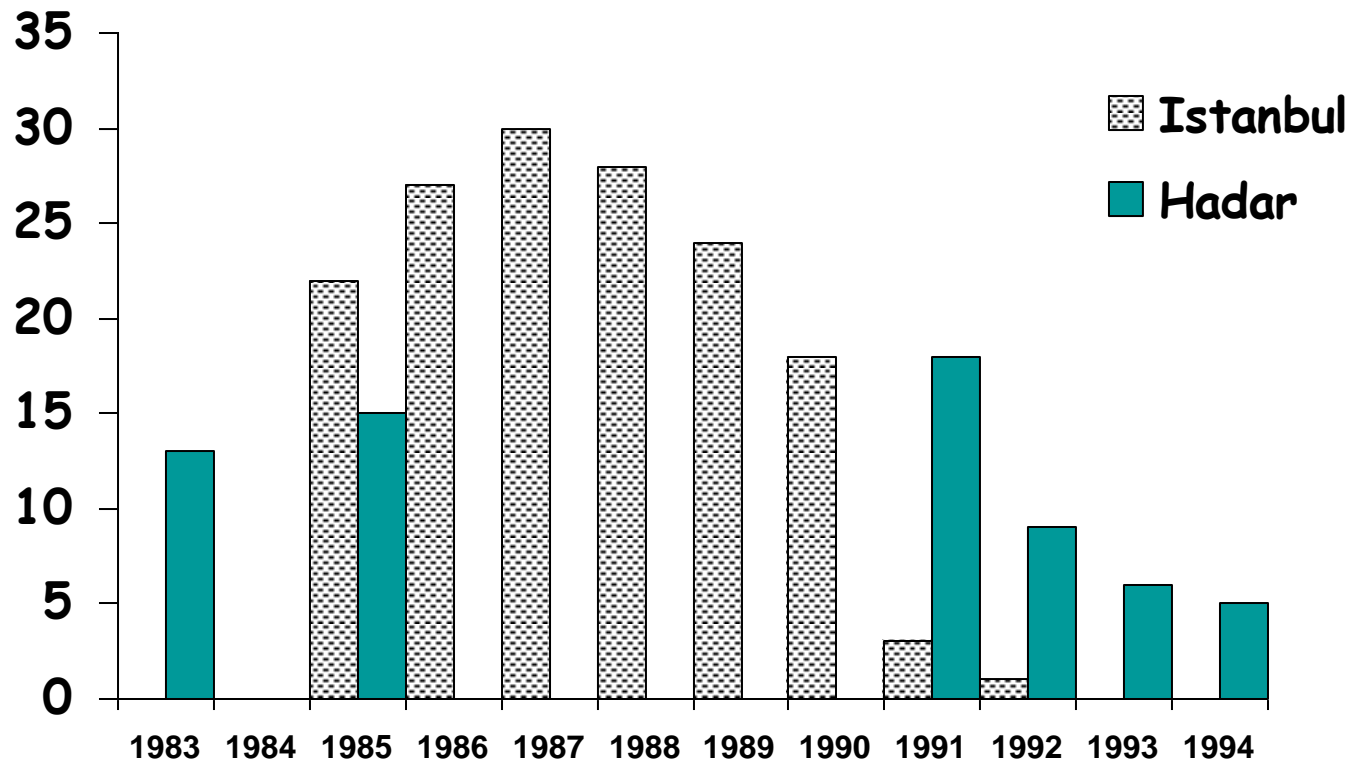


The emergence of *Salmonella* serotype Istanbul, in Alabama US, 1985-90





The emergence of Salmonella serotype Istanbul, Alabama, 1985-90



Kauffmann-White scheme

Is an old system to serotype Salmonella bacteria based on surface antigens (O and H antigens)

O type:

- Hadar is 6,8;z10:enx
- Istanbul is 8;z10:enx



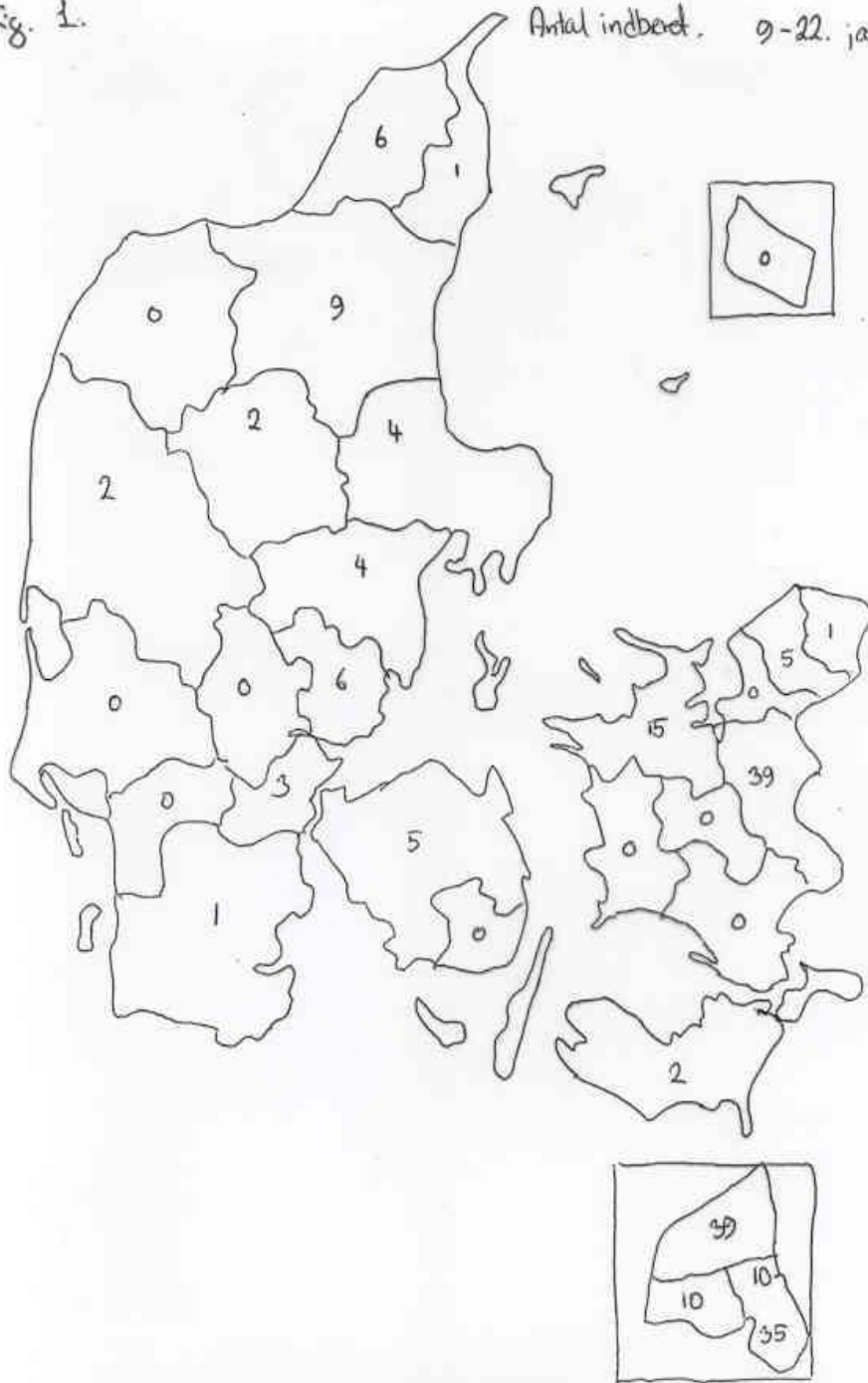
Obs year newport bardo hadar istanbul blockley haardt muenchen virginia

| | | | | | | | | | |
|----|------|----|----|----|----|---|----|----|----|
| 22 | 1980 | 25 | 0 | 0 | 0 | 2 | 0 | 21 | 0 |
| 23 | 1981 | 38 | 0 | 0 | 0 | 1 | 0 | 14 | 0 |
| 24 | 1982 | 26 | 0 | 0 | 0 | 7 | 0 | 28 | 0 |
| 25 | 1983 | 38 | 0 | 13 | 0 | 1 | 0 | 22 | 0 |
| 26 | 1984 | 28 | 0 | 0 | 0 | 5 | 1 | 22 | 0 |
| 27 | 1985 | 39 | 0 | 15 | 22 | 1 | 4 | 20 | 2 |
| 28 | 1986 | 3 | 23 | 0 | 27 | 0 | 3 | 4 | 14 |
| 29 | 1987 | 2 | 26 | 0 | 30 | 0 | 6 | 0 | 35 |
| 30 | 1988 | 0 | 26 | 0 | 28 | 1 | 9 | 0 | 18 |
| 31 | 1989 | 0 | 18 | 0 | 24 | 0 | 11 | 0 | 27 |
| 32 | 1990 | 1 | 31 | 0 | 18 | 0 | 5 | 0 | 14 |
| 33 | 1991 | 32 | 5 | 18 | 3 | 1 | 1 | 7 | 4 |
| 34 | 1992 | 28 | 1 | 9 | 1 | 0 | 0 | 13 | 0 |
| 35 | 1993 | 19 | 1 | 6 | 0 | 0 | 0 | 11 | 0 |
| 36 | 1994 | 23 | 0 | 5 | 0 | 0 | 0 | 11 | 0 |
| 37 | 1995 | 32 | 0 | 5 | 0 | 0 | 0 | 18 | 0 |
| 38 | 1996 | 33 | 0 | 13 | 0 | 0 | 0 | 22 | 0 |
| 39 | 1997 | 32 | 0 | 3 | 0 | 0 | 0 | 32 | 0 |
| 40 | 1998 | 40 | 0 | 3 | 0 | 0 | 0 | 38 | 0 |
| 41 | 1999 | 57 | 0 | 2 | 0 | 0 | 0 | 35 | 0 |
| 42 | 2000 | 70 | 0 | 5 | 0 | 0 | 0 | 38 | 0 |
| 43 | 2001 | 39 | 0 | 4 | 0 | 0 | 0 | 25 | 0 |

area 605 131 101 153 19 40 381 114

Fig. 1.

Antal indberet. 9-22. januar



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Notification of
gastrointestinal
illness, associated
with visit at a
McDonald restaurant,
9-22 January 1997

Source: The Danish Food
Authority



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Thank you for your attention !