

What the Hack 2005

SurvNet

Florian Burckhardt

(Infectious) Disease Surveillance
using the official German surveillance
network as an example

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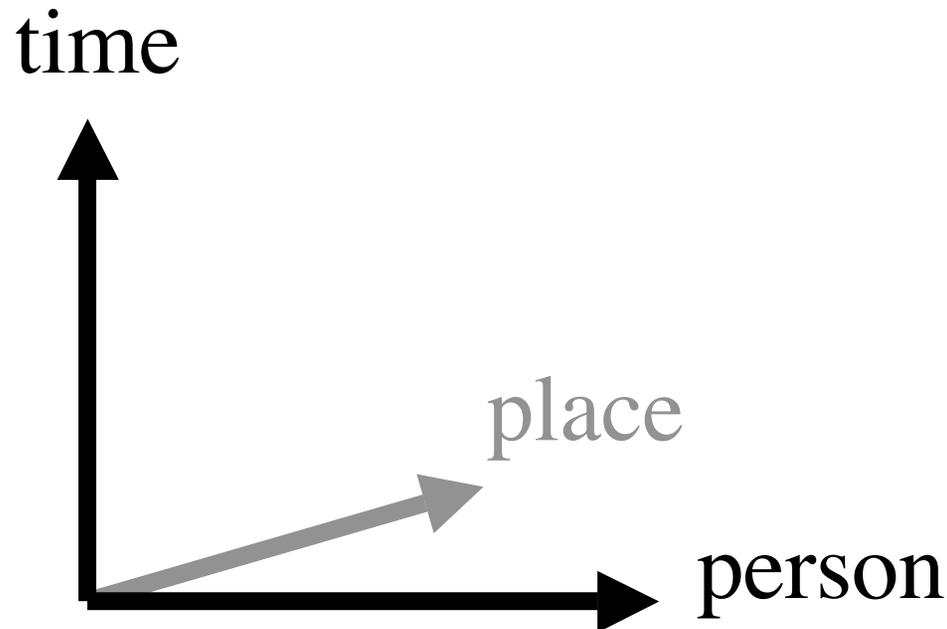
(Infectious) Disease Surveillance
using the official German surveillance
network as an example
! ...plenty of examples... !

What is Disease Surveillance ?

- Detection of patterns of disease in TIME, PLACE and PERSON
- React and respond

Disease dimensions

- multi dimensional data space
- „Person“ includes social, ethnic, cultural, gender, age ... component/sub-dimension

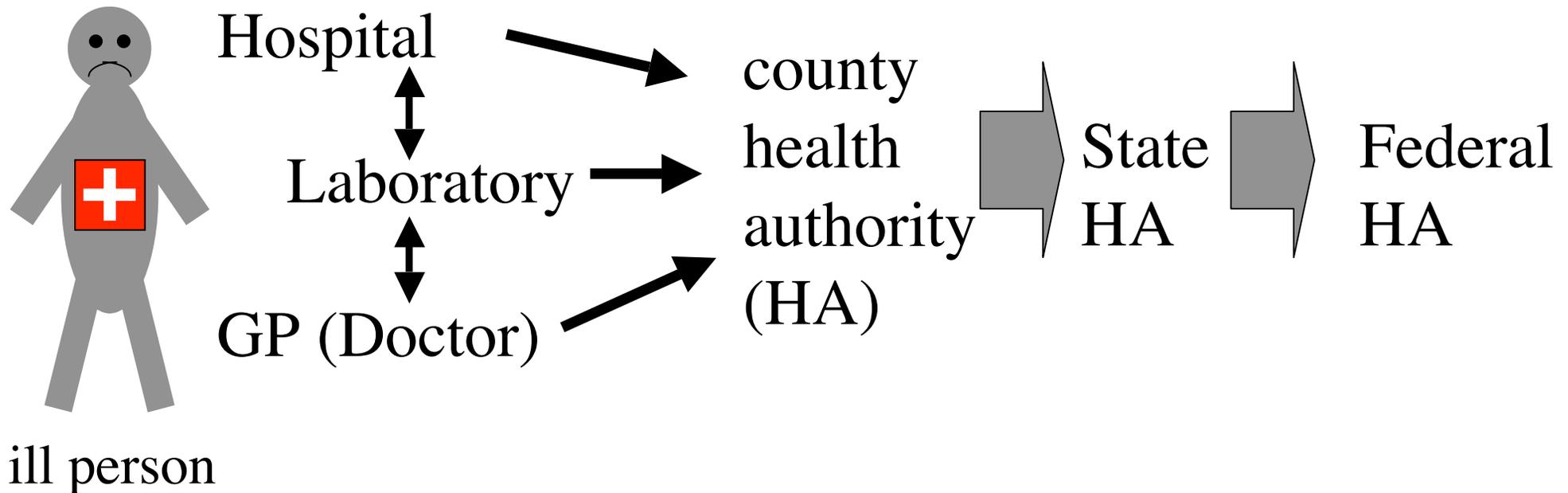


Steps in Disease Surveillance

- Data collection, *chain of notification*
- Data analysis
- Response: e.g. outbreak investigation, product recalls
- Quality control and feedback

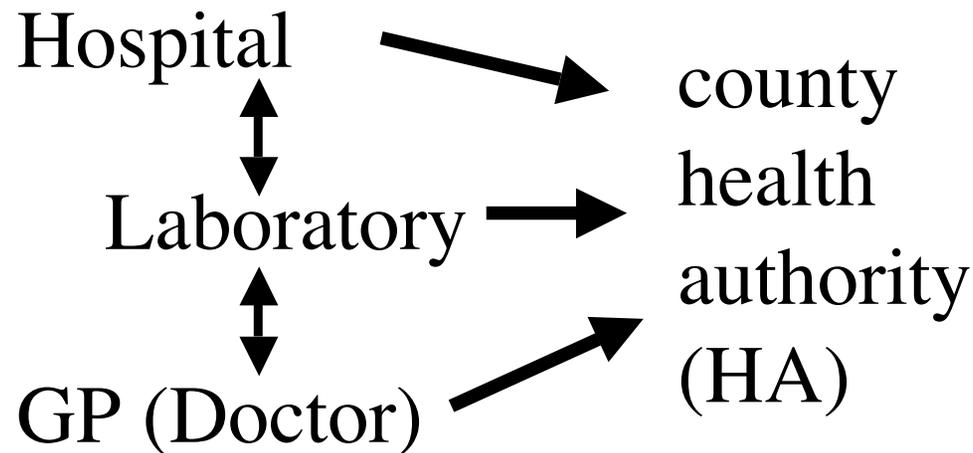
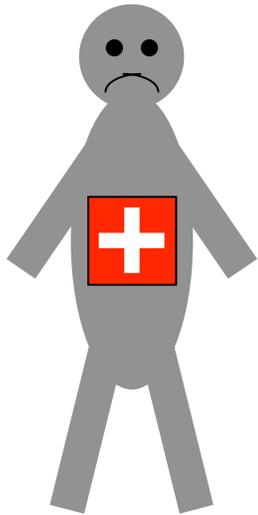
Flow of Information I

Mandatory chain of notification
of notifiable infectious diseases,
as defined by federal and state law
(*Infektionsschutzgesetz, IfSG*)



Flow of Information II

personal details (name,
address, date of birth,
sex), diagnosis



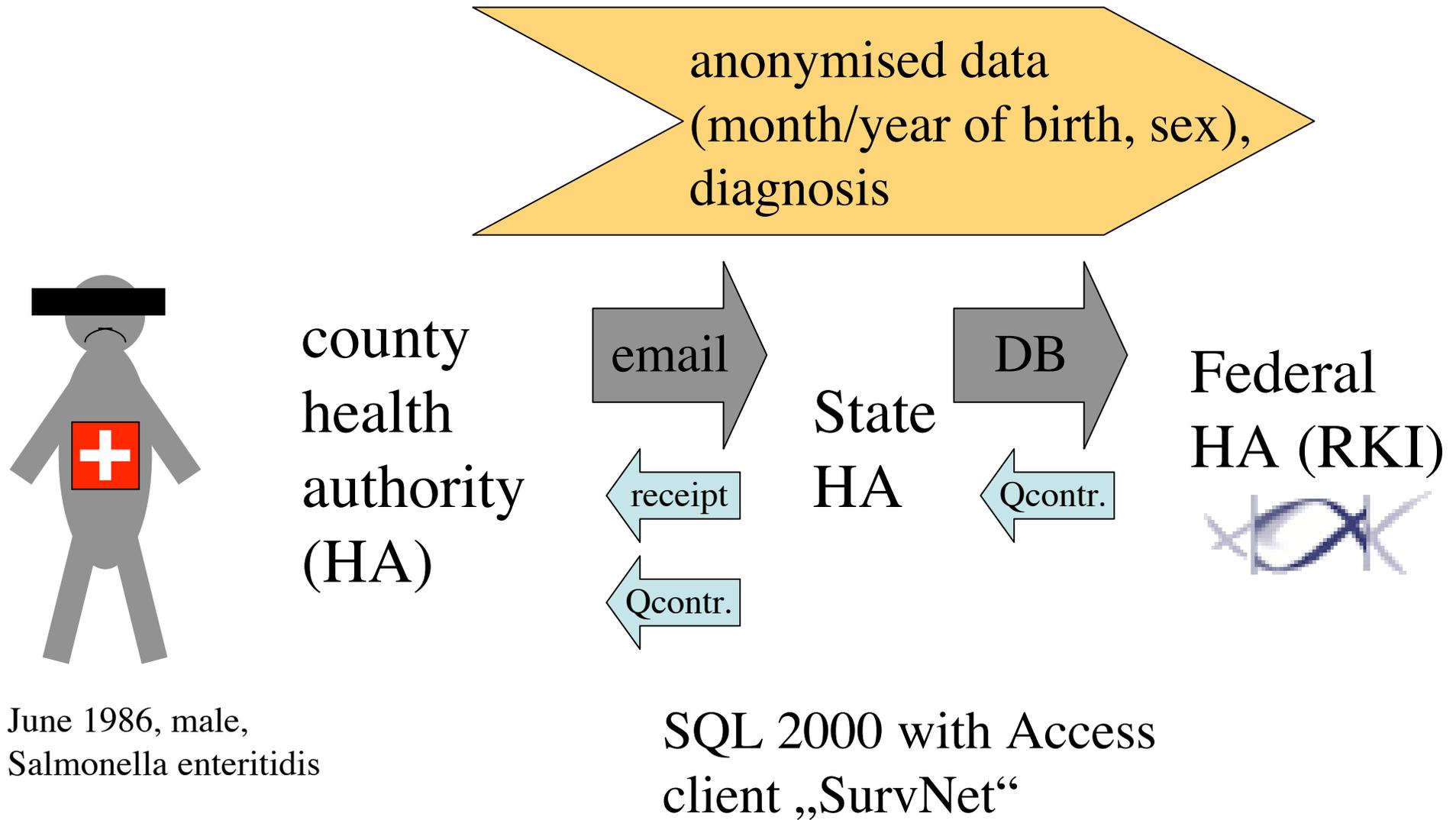
Hans Schmidt,
Nordufer 20, 13353 Berlin
31.6.1986, male,
Salmonella enteritidis

Fax, phone, letter



information
enters digital
domain

Flow of Information III



SurvNet@RKI - Version 2.02.34 - Datenhaltung: SQL-Server - Basispfad: Y:\

Struktur

Adresse aktive

Fall gelöschte

Herd

Meldekategorie

- Pneumokokken
- Pocken
- Polioomyelitis
- Q-Fieber
- Rotavirus
- Röteln, postnatal
- Salmonellose**
- SARS
- Scharlach
- Shigellose
- Tetanus
- Tollwut
- Tollwutexpositionsverda
- Toxoplasmose, postnata
- Trichinellose
- Tuberkulose

Anzeigen Kurzform

Faldefinition anzeigen

Ref.-definition + -

Klin. Bild erf. + -

Lab. Nachw. + -

Epid. Zusam. + -

Herdbezug

Falldefinitionskategorie

- Alle ---
- nicht ermittelbar ---
- klinisch
- klin.-labordiagnostisch
- klin.-epidemiologisch
- labordiagn. bei nicht erf.

Bundesland

--- Alle ---

- Baden-Württemberg
- Bayern**
- Berlin
- Brandenburg
- Bremen
- Hamburg
- Hessen
- Mecklenburg-Vorpo
- Niedersachsen

Regierungsbezirk

--- Alle ---

- Mittelfranken
- Niederbayern
- Oberbayern
- Oberfranken
- Oberpfalz
- Schwaben
- Unterfranken

Landkreis

Gesundheitsamt

Kennung Ort Strasse

Zusatzbedingungen

Abfragedefinition

SQL

Anzeige bezüglich Erstmeldung letzter Meldung

Quelle Bevölkerungsdaten

Bevölkerungsdaten 200...

Altersschichtung

Standard-A

Altersbereiche

- Alle ---
- von 00 bis 00
- von 01 bis 01
- von 02 bis 02
- von 03 bis 03
- von 04 bis 04
- von 05 bis 09
- von 10 bis 14
- von 15 bis 19

Geschlecht

--- Alle ---

männlich

weiblich

Jahr(e)

--- Alle ---

2005

2004

2003

2002

2001

Woche(n)

alle

1 14 27 41

2 15 28 42

3 16 29 43

4 17 30 44

5 18 31 45

6 19 32 46

7 20 33 47

8 21 34 48

9 22 35 49

10 23 36 50

11 24 37 51

12 25 38 52

13 26 39 53

Monat(e)

alle

12 4 7 10

1 5 8 11

2 6 9 12

Quartal(e)

alle

4 2 3 4

1

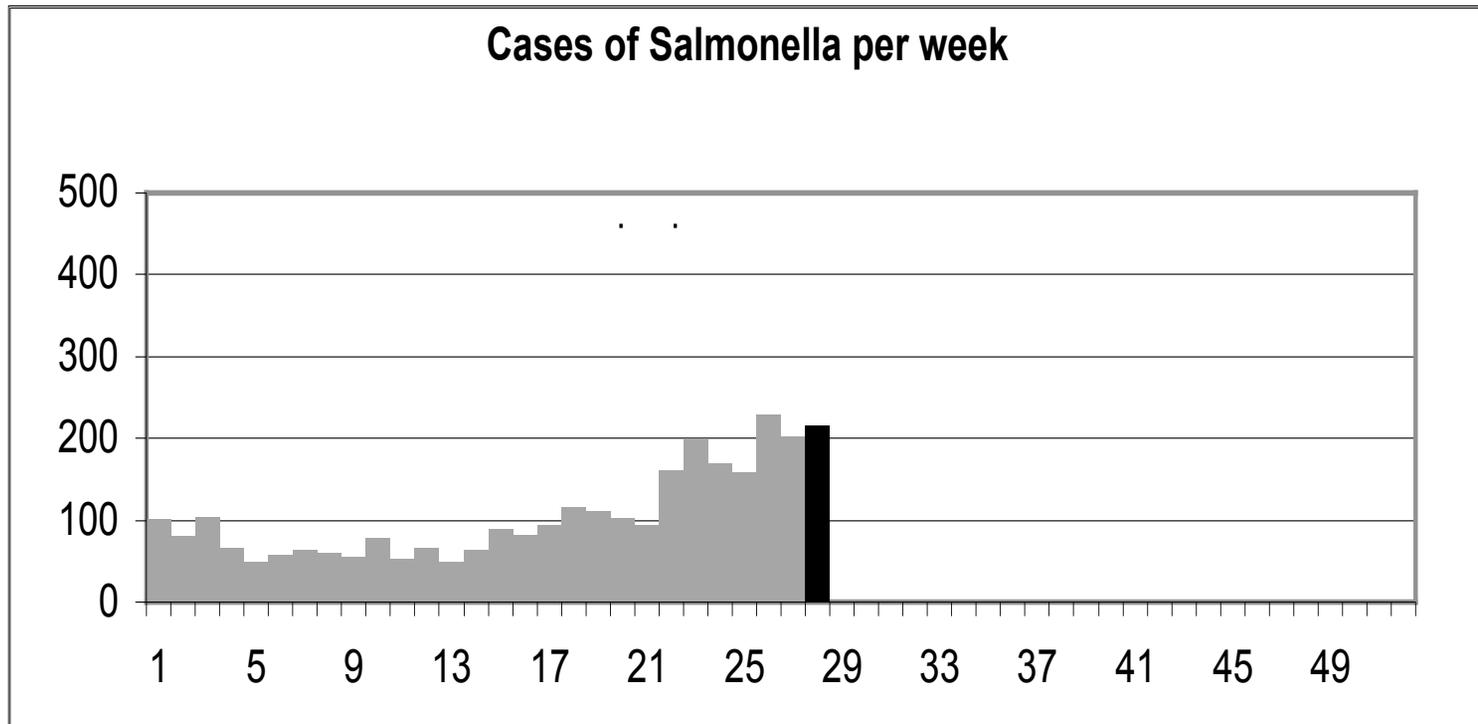
Int. Ref.	Erf.Stelle	Aktenzeichen	Version	Bes.Fall	Kategorie	vollst. ToDos	Landkreis	Jahr	Wo	Tra
198008			5		Salmonellose	<input checked="" type="checkbox"/>		2005	01	-
198074			2		Salmonellose	<input checked="" type="checkbox"/>		2005	01	-
198143			3		Salmonellose	<input checked="" type="checkbox"/>		2005	01	-
198247			2		Salmonellose	<input checked="" type="checkbox"/>		2005	01	-
198248			2		Salmonellose	<input type="checkbox"/>		2005	01	-
198264			4	1	Salmonellose	<input checked="" type="checkbox"/>		2005	02	-
199513			2		Salmonellose	<input checked="" type="checkbox"/>		2005	01	-
199556			1	2	Salmonellose	<input checked="" type="checkbox"/>		2005	01	-
199667			1		Salmonellose	<input checked="" type="checkbox"/>		2005	02	-
199775			2	1	Salmonellose	<input checked="" type="checkbox"/>		2005	02	-
199810			1		Salmonellose	<input checked="" type="checkbox"/>		2005	01	-
199836			2	1	Salmonellose	<input checked="" type="checkbox"/>		2005	02	-
199930			1		Salmonellose	<input checked="" type="checkbox"/>		2005	01	-
199942			2		Salmonellose	<input checked="" type="checkbox"/>		2005	02	-
199947			2		Salmonellose	<input checked="" type="checkbox"/>		2005	01	-
200066			1	1	Salmonellose	<input checked="" type="checkbox"/>		2005	02	-
200082			1		Salmonellose	<input checked="" type="checkbox"/>		2005	03	-
200089			1		Salmonellose	<input checked="" type="checkbox"/>		2005	02	-
200103			1		Salmonellose	<input checked="" type="checkbox"/>		2005	03	-
200118			1		Salmonellose	<input checked="" type="checkbox"/>		2005	02	-
200148			1	1	Salmonellose	<input checked="" type="checkbox"/>		2005	02	-
200158			2	1	Salmonellose	<input checked="" type="checkbox"/>		2005	02	-
200291			1		Salmonellose	<input type="checkbox"/>		2005	03	-
200293			1		Salmonellose	<input checked="" type="checkbox"/>		2005	03	-
200456			1		Salmonellose	<input checked="" type="checkbox"/>		2005	02	-
200457			1		Salmonellose	<input checked="" type="checkbox"/>		2005	02	-

Suche im AktZ. nach Suche starten weitersuchen

Beenden Neu Importfehler Transport Historie (U)ser Historie Offen Recherche Spezial Text 3-D Epicurve Balken Kreis Aktualisieren Treffer 3150 Daten-Export

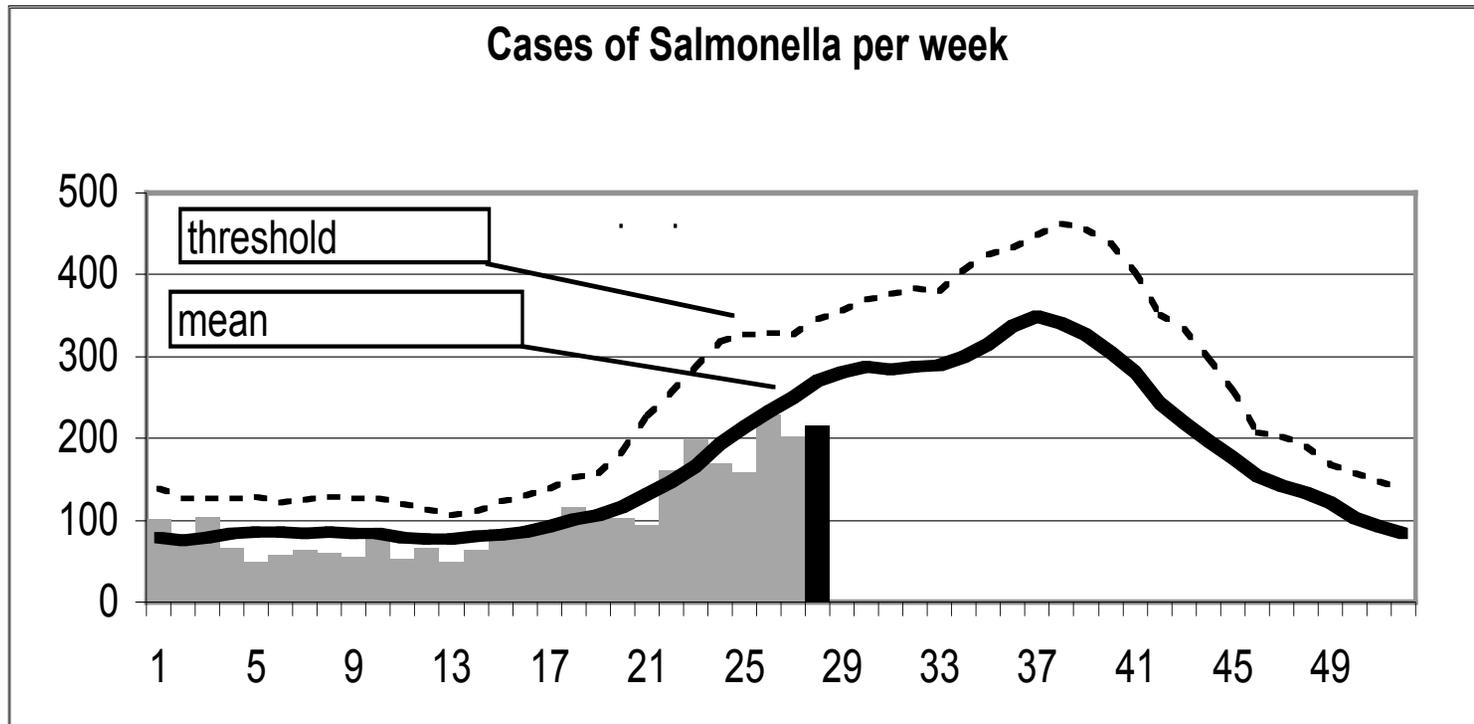
Data Analysis I

- usually very simple descriptive statistics
- Line graphs



Data Analysis II

- use data from previous years (2001-2004) to calculate mean and threshold



enter... SurvStat@RKI !!!

- <http://www3.rki.de/SurvStat/>

The screenshot shows a web browser window titled "SurvStat@RKI" with the address bar containing "http://www3.rki.de/SurvStat/". The page header includes "SurvStat@RKI" on the left, "Recherche" in the center, and "ROBERT KOCH INSTITUT" with a logo on the right. Below the header, there are navigation tabs: "Krankheit", "Zeit", "Ort", "Person", "Faldefinition", and "Anzeige". The "Anzeige" tab is active, showing a search form with a "Meldekategorie" section containing radio buttons for "Über Gesundheitsamt und Landesstelle" (selected) and "Nichtnamentlich direkt an das RKI". A list of diseases is displayed, with "Adenovirus" selected. Below the list is an "Anzeigen:" dropdown menu set to "Kurzform". At the bottom of the form are buttons for "Abfrage starten" and "Zurücksetzen", along with language flags for UK and DE. The footer of the page reads "SurvStat@RKI V. 2.1.1949.29109". The browser's status bar at the bottom shows "Done" and "Adblock".

Example 1a: Tuberculosis

The screenshot shows a web browser window titled "SurvStat@RKI" with the URL "http://www3.rki.de/SurvStat/QueryForm.aspx". The page content includes the following elements:

- Header:** "SurvStat@RKI" on the left and "Recherche" on the right. The Robert Koch Institut logo is also present.
- Navigation:** A set of tabs for "Krankheit", "Zeit", "Ort", "Person", "Falldefinition", and "Anzeige".
- Form Fields:**
 - "Meldekategorie" with a checked "G" icon.
 - Radio buttons for "Über Gesundheitsamt und Landesstelle" (selected) and "Nichtnamentlich direkt an das RKI".
 - A list of diseases with "Tuberkulose" selected.
 - A dropdown menu for "Anzeigen" set to "Kurzform".
- Summary:** "Ihre Abfrage" section showing: "Selektion: Meldekategorien: Tuberkulose", "Jahre: 2005", "Referenzdefinition: Ja", "Gruppierung: Meldekategorie", "Kreuztabelle:", "Inzidenz: Nein", and "Datenstand: 13.07.2005".
- Buttons:** "Abfrage starten" and "Zurücksetzen" at the bottom.
- Footer:** "SurvStat@RKI V. 2.1.1949.29109" and a language selector (UK/DE).

The browser's status bar at the bottom shows "Done" on the left and "Abblock" on the right.

Example 1b: Tuberculosis

The screenshot shows the SurvStat@RKI web application interface. The browser address bar displays <http://www3.rki.de/SurvStat/QueryForm.aspx>. The page title is "SurvStat@RKI" and the search type is "Recherche". The Robert Koch Institut logo is visible in the top right corner.

The search criteria are defined by several tabs: "Krankheit", "Zeit", "Ort", "Person", "Falldefinition", and "Anzeige". The "Ort" (Location) criteria are expanded to show three selection boxes:

- Bundesland** (State): G. List includes: --- Alle ---, --- nicht ermittelbar ---, Baden-Württemberg, Bayern, Berlin, Brandenburg, Bremen, Hamburg, Hessen, Mecklenburg-Vorpommern, Niedersachsen, Nordrhein-Westfalen, Rheinland-Pfalz, Saarland, Sachsen, Sachsen-Anhalt, Schleswig-Holstein, Thüringen.
- Regierungsbezirk** (Administrative District): G. List includes: --- Alle ---, --- nicht ermittelbar ---, Arnsherg, Berlin, Brandenburg, Braunschweig, Bremen, Chemnitz, Darmstadt, Dessau, Detmold, Dresden, Düsseldorf, Freiburg, Gießen, Halle, Hamburg, Hannover.
- Kreis** (District): G. List includes: --- Alle ---, --- nicht ermittelbar ---, LK Aachen, LK Ahrweiler, LK Aichach-Friedberg, LK Alb-Donau-Kreis, LK Altenburger Land, LK Altenkirchen, LK Altmarkkreis Salzwede, LK Altötting, LK Alzey-Worms, LK Amberg-Weizsach, LK Ammerland, LK Anhalt-Zerbst, LK Annaberg, LK Ansbach, LK Aschaffenburg, LK Aschersleben-Staffeldt.

Below the selection boxes, a note states: "nach Wohn- bzw. gewöhnlichem Aufenthaltsort, nicht nach Infektionsort". At the bottom of the search area are buttons for "Abfrage starten" (Start query) and "Zurücksetzen" (Reset), along with flags for the United Kingdom and Germany.

On the right side, the search results summary is displayed under "Ihre Abfrage" (Your query):

- Selektion: *Meldekategorien: Tuberkulose*
- Jahre: 2005
- Referenzdefinition: Ja
- Gruppierung: Kreis
- Kreuztabelle:
- Inzidenz: Nein
- Datenstand: 13.07.2005

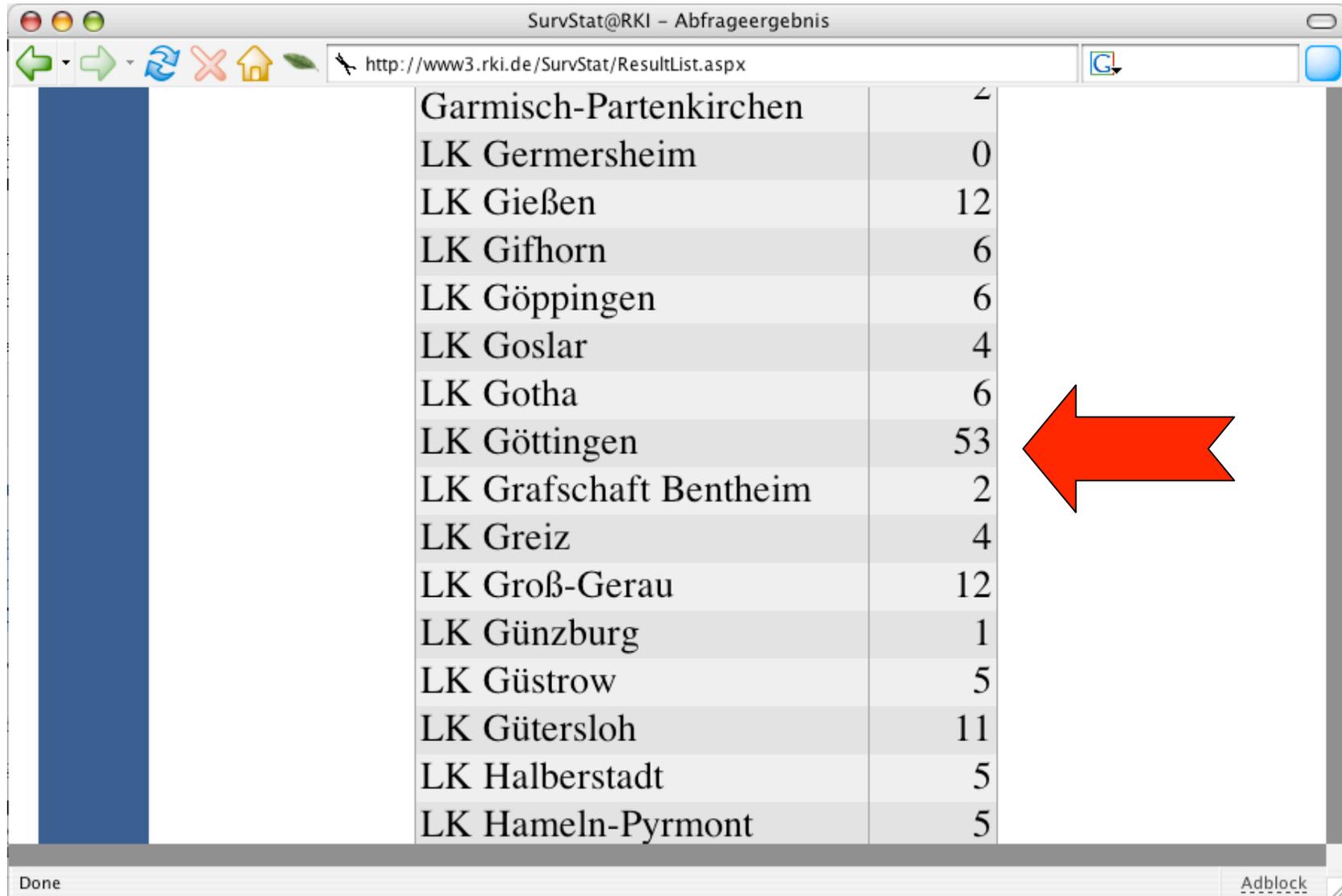
The footer of the application shows "SurvStat@RKI V. 2.1.1949.29109". The browser status bar at the bottom indicates "Done" and "Adblock".

Example 1c: Tuberculosis

The screenshot shows a web browser window titled "SurvStat@RKI - Abfrageergebnis". The address bar contains the URL "http://www3.rki.de/SurvStat/ResultList.aspx". The page content includes the "SurvStat@RKI" logo, a search result "ROBERT K", and a list of visualization options: "Darstellung als: Tabelle Histogramm Balkendiagramm Liniendiagramm Kreisdiagramm Karte". Below this is the title "Übermittelte Tuberkulose-Fälle nach Landkreis (Wohn-/Aufenthaltsort des Falles), Deutschland, 2005, Fälle entsprechend der Referenzdefinition des RKI; Datenstand: 13.07.2005". A table displays the data, and a sidebar on the right contains controls for "Ihre Abfrage", "Selektion:", "Gruppierung:", "Kreuztabelle:", "Inzidenz:", and "Datenstand:". The browser status bar at the bottom shows "Done" and "Abblock".

Landkreis	Anzahl
--- nicht ermittelbar ---	7
Berlin	158
LK Aachen	7
LK Ahrweiler	2
LK Aichach-Friedberg	4
LK Alb-Donau-Kreis	4
LK Altenburger Land	0
LK Altenkirchen	1
LK Altmarkkreis Salzwedel	0
LK Altötting	4
LK Alzey-Worms	4
LK Amberg-Weizsach	3
LK Ammerland	0
LK Anhalt-Zerbst	3
LK Annaberg	1
LK Ansbach	8

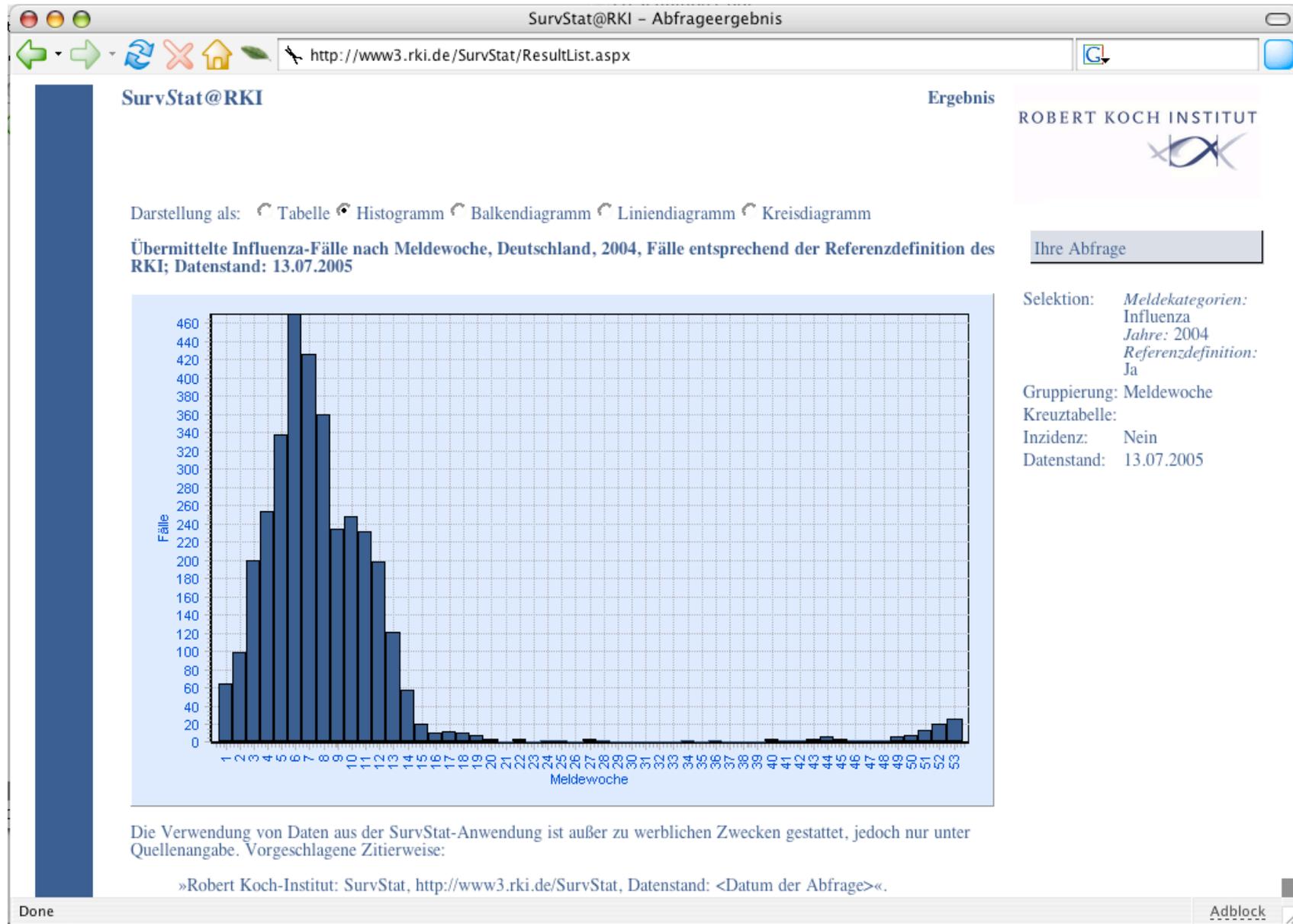
Example 1d: Tuberculosis



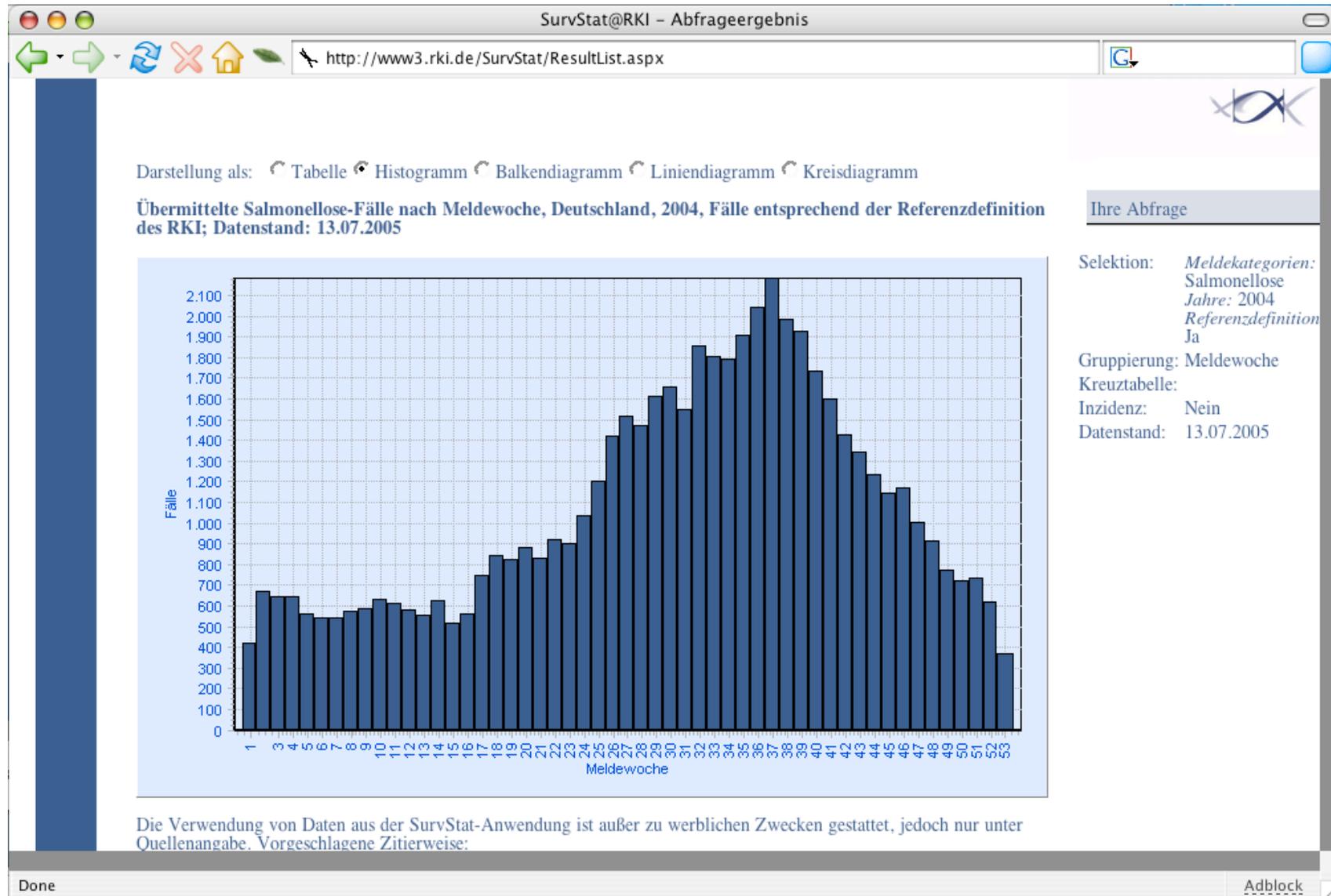
The screenshot shows a web browser window titled "SurvStat@RKI - Abfrageergebnis". The address bar contains the URL "http://www3.rki.de/SurvStat/ResultList.aspx". The main content is a table with two columns: the name of the region (LK) and the number of cases. A red arrow points to the row for "LK Göttingen", which has 53 cases.

Garmisch-Partenkirchen	4
LK Germersheim	0
LK Gießen	12
LK Gifhorn	6
LK Göppingen	6
LK Goslar	4
LK Gotha	6
LK Göttingen	53
LK Grafschaft Bentheim	2
LK Greiz	4
LK Groß-Gerau	12
LK Günzburg	1
LK Güstrow	5
LK Gütersloh	11
LK Halberstadt	5
LK Hameln-Pyrmont	5

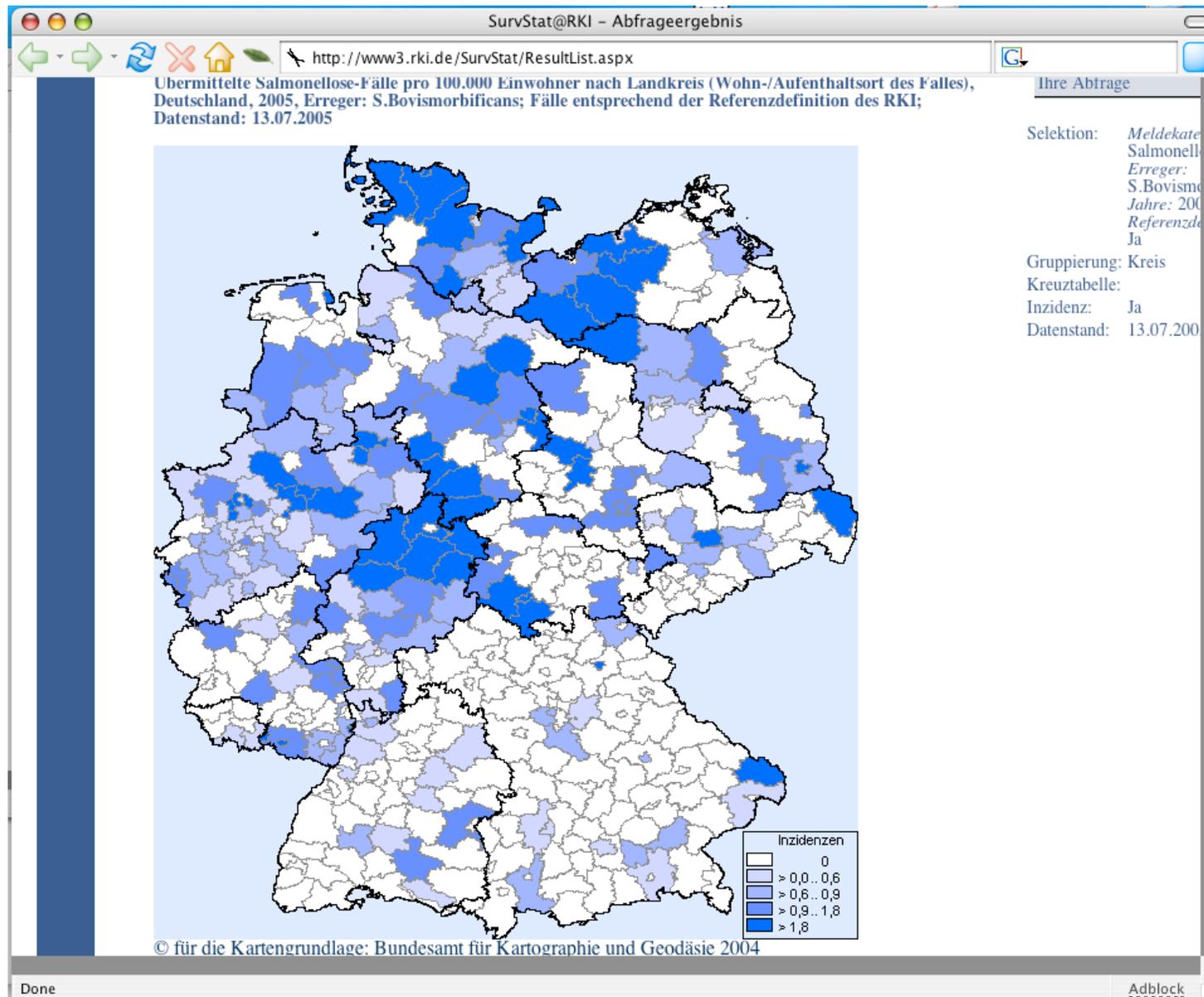
Example 2: Influenza



Example 3: Salmonella



Example 4: Salmonella bovismoribificans



Further issues of disease surveillance

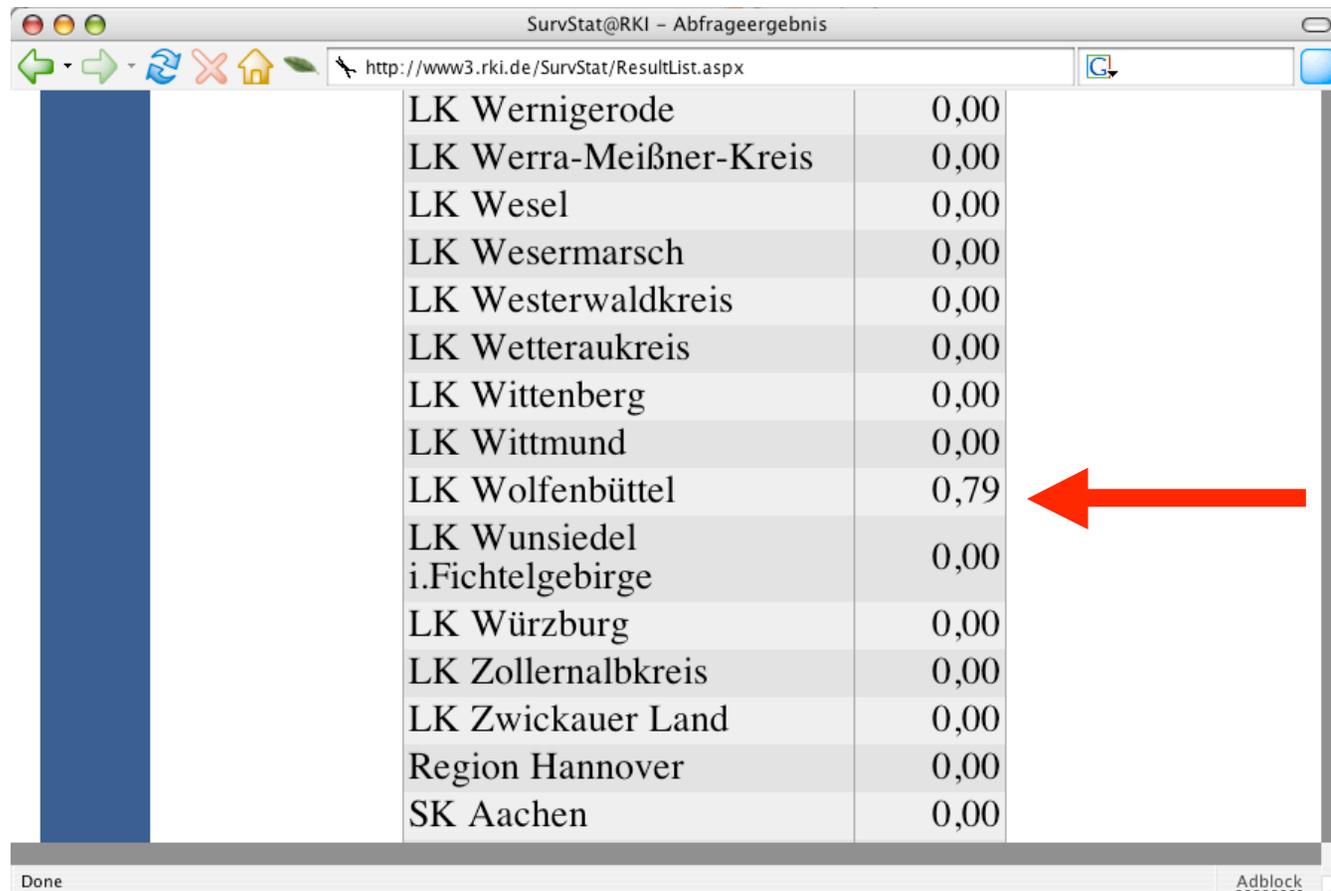
- balance of privacy, personal freedom and public good (vaccination, treatment of contagious diseases)
- timely response necessary for looming public health threats: influenza pandemic, biological weapon incident
- selection of diseases to survey = inclusion/exclusion of vulnerable groups (STD surveillance = taboo, hurts young women)

Homework: Salmonella Amsterdam

- find out, which German county had the highest incidence of Salmonella Amsterdam in 2004

Homework: Salmonella Amsterdam

- find out, which German county had the highest incidence of Salmonella Amsterdam in 2004



SurvStat@RKI - Abfrageergebnis

http://www3.rki.de/SurvStat/ResultList.aspx

LK Wernigerode	0,00
LK Werra-Meißner-Kreis	0,00
LK Wesel	0,00
LK Wesermarsch	0,00
LK Westerwaldkreis	0,00
LK Wetteraukreis	0,00
LK Wittenberg	0,00
LK Wittmund	0,00
LK Wolfenbüttel	0,79
LK Wunsiedel i.Fichtelgebirge	0,00
LK Würzburg	0,00
LK Zollernalbkreis	0,00
LK Zwickauer Land	0,00
Region Hannover	0,00
SK Aachen	0,00

Done Adblock

What the Hack 2005

SurvNet

Have a nice time at WTH,
and please don't hack Survstat@RKI

turn on, tune in, drop out