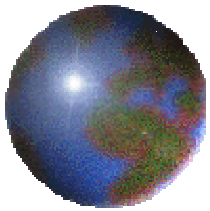


Background on development of the Rapid Inquiry Facility (RIF) tool

Environmental Health Tracking Program

Grantee Workshop

Tampa, October 27, 2005

Lars Jarup, Imperial College London


POISONED TOWN
DAILY EXPRESS 17 MAY 1996
One school, one class
..... three cancer cases
THE INDEPENDANT 17 MAY 1996
Leukaemia cluster
at school in town
hit by pollution
THE GUARDIAN 17 May 1996
Parents' fears
in poison town
DAILY EXPRESS 17 May 1996
Cancer children
in poison town
DAILY TELEGRAPH 17 May 1996
THE TIMES FRIDAY MAY 17 1996
Three children in
same classroom
contract leukaemia
Poison town in fear

The Black Enquiry
Recommendation 5

"… encouragement should be given to an organisation … to co-ordinate centrally the monitoring of small area statistics around major installations producing discharges that might present a carcinogenic or mutagenic hazard to the public. In this way, early warning of any untoward health effect could be obtained."

London, HMSO, 1984

SAHSU

- The Small Area Health Statistics Unit (SAHSU)
- Commenced 1987
- London School of Hygiene and Tropical Medicine
- Imperial College London since 1996

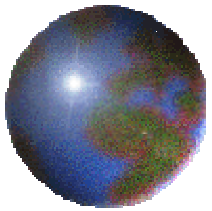
SAHSU

- SAHSU's remit includes:
- To respond rapidly to ad hoc queries about unusual clusters of disease, particularly in the neighbourhood of industrial installations
- To develop and maintain a Rapid Inquiry Facility
- To develop small-area statistical methodology

Some issues of interpretation

- Data problems
- Latency periods/migration
- Ecological bias
- Confounding
- Exposure model - validation

SAHSU website



www.sahsu.org

EUROHEIS

- **A European Health and Environment Information System for Exposure and Disease Mapping and Risk Assessment**
- Main objectives
  - to assess the feasibility of implementing systems for point source investigations and disease mapping, within several European countries, modeled on the Rapid Inquiry Facility (RIF) system (2000)
  - To implement the RIF where feasible (2001/2002)
  - To evaluate the usefulness of the implemented RIF systems in several case studies (2002/2003)

EUROHEIS

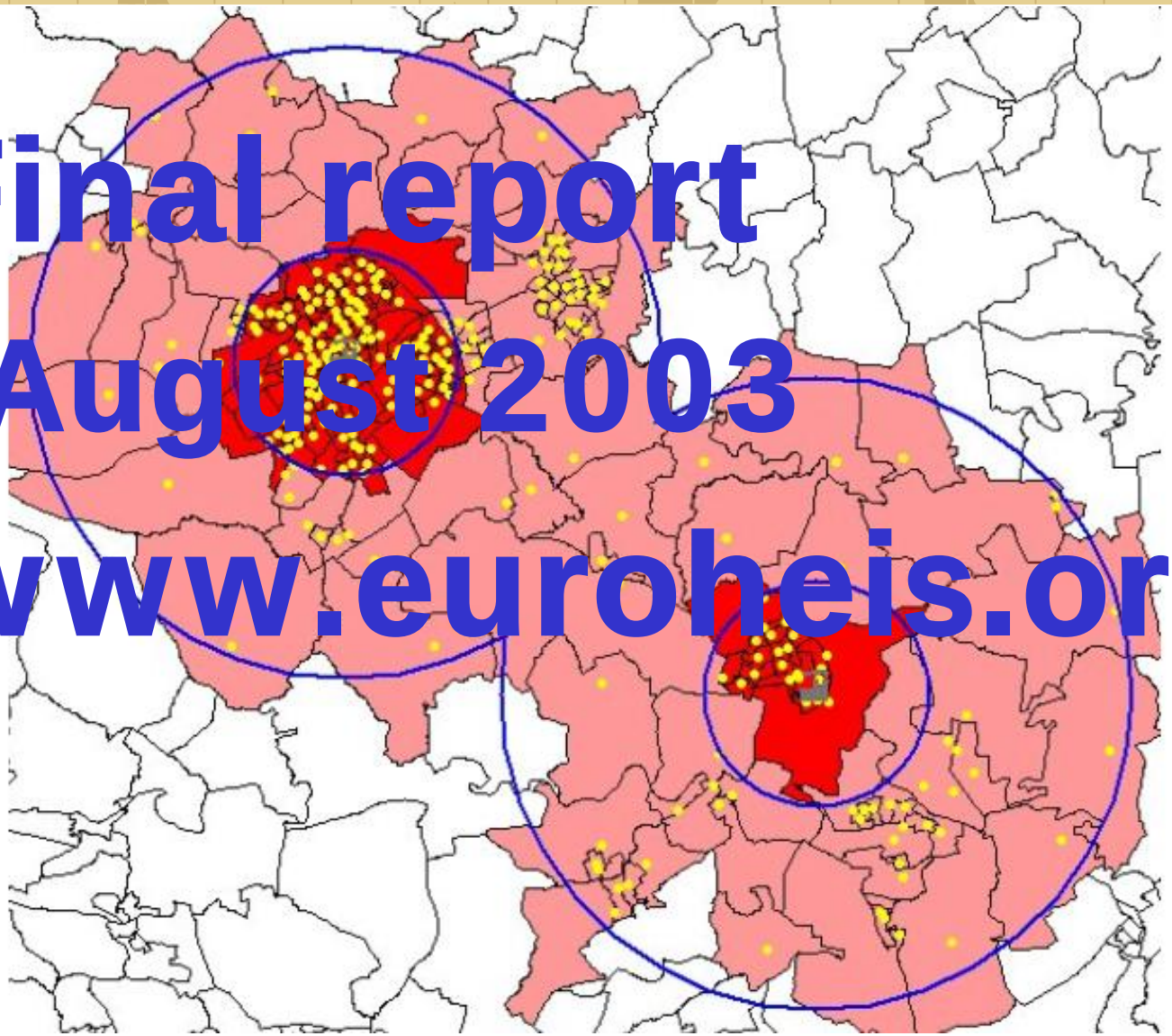
- Successful implementation is greatly dependent on good quality data being available for use
- Size of the geographical base units and sparseness of data may pose problems
  - Statistical methods may at least partially overcome problems related to data resolution and sparseness
  - In general, a Bayesian hierarchical modeling approach is recommended

EUROHEIS

- Implementations of UK RIF
  - Spain
  - Sweden
  - Finland
  - The Netherlands

EUROHEIS

- Final report
  - August 2003
- www.euroheis.org



CDC SAHSU collaboration

- Redevelopment of the RIF software to US conditions
  - Conversion of the original RIF code (ArcView/Avenue) to Visual Basic (VB6/VBA)
  - To be able support a variety of relational databases via ODBC. Initially, MS Access and Oracle 10g databases will be supported

CDC SAHSU collaboration

- Enhancements to the original RIF, e.g.
  - Modeled exposure areas may be input as shape-files
  - Additional co-variates (socio-economic status and others)
  - Posterior probability maps to reflect uncertainty in point estimate maps of relative risks
- Test of US RIF on Utah Cancer data