

ICT for Health and Environment



ICT for Health and Environment

Austrian Public Health Institute

www.goeg.at

Charlotte Wirl & Johann Kerschbaum

wirl@goeg.at

ICT for Health and Environment



Austrian Public Health Institute GÖG/ÖBIG

established in 1973; about 100 employees

Working fields

- Health Care Planning
- Health Reporting
- Health Economics
- Health Promotion & Prevention
- Long Term Care
- Health profession
- Transfusion & Transplantation



Experience

- Periodic Public Health Reports including environmental data
- International cooperation:
Environmental Health Information System (ENHIS, ENHIS2); EUPHIX

ICT for Health and Environment



Austrian Health Information System (ÖGIS)

- Integration of data sources in **one analysis tool** (based on GIS technology)

<i>Health Data</i>	Source	Fee	Timeliness	Reliability	Completeness
Mortality Statistics & Life Expectancy	ST.AT	Yes	✓	✓	✓
Cancer Registry	ST.AT	Yes	-	≈	≈
Hospital Admissions	MoH	No	✓	≈	✓
Military Check-up Data	MoD	No	≈	✓	✓
Traffic Accidents	KfV	Yes	✓	✓	✓
Health Interview Surveys & health behaviour	ST.AT	Yes	≈	✓	✓
Population Census & socio-economic /housing	ST.AT	Yes	≈	✓	✓

ICT for Health and Environment



<i>Exposure Data</i>	Source	Fee	Timeliness	Reliability	Complete-ess
Air Pollution	MoE	No	✓	✓	≈
Drinking water Pollution	priv	Yes	≈	≈	-
Radon Potential	MoH	No	-	✓	✓
Radioactivity	MoH / MoE	No	✓	✓	✓
Noise	no systematically collected data available				

- Personal ID: Partially single-person-datasets (anonymous)
- High spatial resolution for almost all data sources (2.300 municipalities / communities)
- Periodical updates
- Linkage of Environment and Health data



- Demographie
- Sozioökonomie
- Lebenserwartung
- Todesursachenstatistik
- Krebsstatistik
- Diagnosen-/Leistungsdokumentation
- Stellungsuntersuchungen
- Arbeitsunfälle/Berufskrankheiten
- Straßenverkehrsunfälle
- Mikrozensus
- Heilmittelverbrauch
- Regressionsanalyse
- DLD-Analyse
- DLD-Regionalanalyse
- Betteninanspruchnahme
- KA-Statistik/Kostenrechnung
- Krankenanstalt Benchmarking
- Ärztstatistik
- Nichtärztliche Gesundheitsberufe
- Natürliche Einzugsbereiche
- Versorgungspotentiale
- GUM - Grand Unified Model

nGc	sDsc	nPops	nCases	nRatio	nStdRatio	nStdRatioA
10101	Eisenstadt	122557.8	23	18.7666554066734	16.3716688294822	23.6669214269979
10201	Rust	20333	8	39.3449072935622	30.1829229349587	23.6669214269979
10301	Breitenbrunn	17685.9	5	28.2711086232535	29.8866797654797	23.6669214269979
10302	Donnerskirchen	18804	6	31.9081046585833	32.4308154407049	23.6669214269979
10303	Großhöflein	19383.7	2	10.3179475538726	7.8497881577803	23.6669214269979
10304	Hornstein	28906	10	34.5948937936761	30.3557713111359	23.6669214269979
10305	Klingenbach	13800.5	6	43.4766856273323	44.0044950974114	23.6669214269979
10306	Leithaprodersdorf	24296.8	3	32.9261466530572	32.6608904758663	23.6669214269979
10307	Mörbisch am See	27881.2	4	14.3465847954894	13.6699784750913	23.6669214269979
10308	Müllendorf	14355.2	3	20.8983504235399	54.9892923585197	23.6669214269979
10309	Neufeld an der Leitha	29651.5	9	30.3525959900848	22.9393367407317	23.6669214269979
10310	Oggau	22494.2	4	17.7823616754541	16.113277638073	23.6669214269979
10311	Oslip	14176.1	2	14.1082562223715	23.7758786981585	23.6669214269979
10312	Purbach am Neusiedler See	27690.3	5	18.0568646782447	12.2967172014061	23.6669214269979
10313	St. Margarethen im Burgenland	31264.5	10	31.9851588862768	27.8353541364	23.6669214269979
10314	Schützen am Gebirge	15964.7	3	18.7914586556591	8.05193451217378	23.6669214269979
10315	Siegersdorf im Burgenland	39626.9	16	40.3766128564182	32.2821721122872	23.6669214269979
10316	Steinbrunn-Zillingtal	24890.2	10	40.1764549903175	36.9930467881738	23.6669214269979

Abfrage

Betteninanspruchnahme	DLD-Regionalanalyse	Mikrozensus	Ärztstatistik	DLD-Analyse	R.I.S.S.	Regressionsanalyse
Natürliche Einzugsbereiche	Lebenserwartung	Arzneimittel	Kostenstellen	Benchmarking	Grand Unified Model	
Demographie	Arbeitsunfälle und Berufskrankheiten		Versorgungspotential		Nichtärztliche Gesundheitsberufe	
Todesursachenstatistik	Krebsstatistik	Stellungsuntersuchungen	Diagnosen-/Leistungsdokumentation	Straßenverkehrsunfälle		

Mortalität (alters-/geschlechtsstandardisiert)

Analysetyt:

Regionale Aggregationsebene:

Region:

Regionsnamen in Tabelle einfügen

Zahlenformat:

Standardbevölkerung:

Skalierungsindex Daly:

Zeitraum:

Geschlecht:

Altersgruppe:

Art der Obduktion:

Auswahl Diagnosegruppen:

Diagnose:

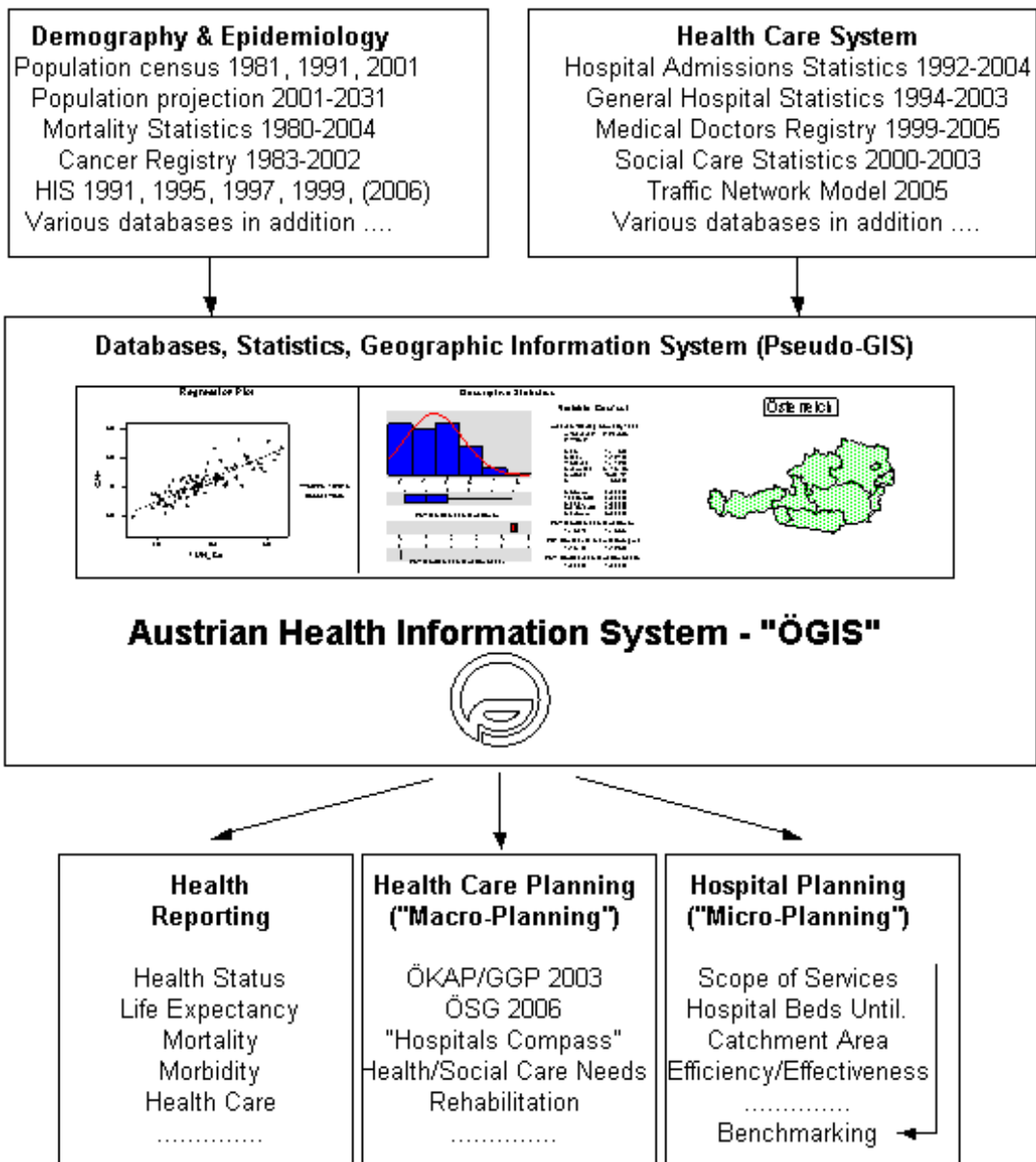
Bindende exogene Diagnosen

Abfrage:

Tabellenname:

- Creating table (nGc,nAGr)
- Creating table (nGc,nAGr)
- Creating table (nGc,nPop)
- Creating table (nAGruppe)
- Creating table Magenca8091
- Creating table (nGc,nPop)
- Creating table (nAGruppe)
- Creating table Magenca9204
- Calculating significance test
- Calculating significance test
- Calculating smoothed star
- Calculating smoothed star
- Query time [6:32], SqlCpi
- Task Magenca8091 compl
- Query time [6:23], SqlCpi
- Task Magenca9204 compl
- Elapsed time for loading ir
- Elapsed time for loading ir
- Elapsed time for loading ir
- Elapsed time for loading ir
- Creating table (nGc,nAGr)
- Creating table (nGc,nAGr)
- Creating table (nGc,nPop)
- Creating table (nAGruppe)
- Calculating significance test
- Query time [2:26], SqlCpi
- Task Magenca9204 compl
- Elapsed time for loading ir
- Elapsed time for loading ir
- Creating table (nWc,nJah
- Elapsed time for loading ir
- Elapsed time for loading ir
- Creating table (nWc,nJah
- Creating table (nWc,nJah
- Creating table (nJahr,nAC
- Creating table (nAGruppe)
- Creating table Magenca8091
- Calculating significance test
- Query time [3:32], SqlCpi
- Task Magenca8004ZR cor
- Elapsed time for loading ir
- Elapsed time for loading ir
- Elapsed time for loading ir
- Elapsed time for loading ir
- Elapsed time for loading ir
- Elapsed time for loading ir
- Elapsed time for loading ir
- Elapsed time for loading ir

Data from Various Sources



Recommendations, Policy Decisions

ICT for Health and Environment



Advantage

- **Easy to use tool:** Tables, maps, graphs, trends, regression
- Comparability and stability
- High user rate within GÖG/ÖBIG
- Standard populations (Austria, Europe, WHO)
- Statistical analyses resolving time and space at maximum level of resolution → “monitoring”
- Usefulness of **data linkage** for public health policy and practice: Identifying “PH priority regions” and “hot spots”, “health goals”
- Providing information for policy development, for monitoring and evaluating policy effectiveness (“Public Health action cycle”)



ÖGIS data used for

- **Health reporting** (Monitoring)
- Health care planning
- Benchmarking
- Data analysis on demand (fee)
- **Interface for free data:**
<http://regis.oebig.at>



Demographie



Lebenserwartung



Sterblichkeit



Spitalsaufnahmen



Lifestyle

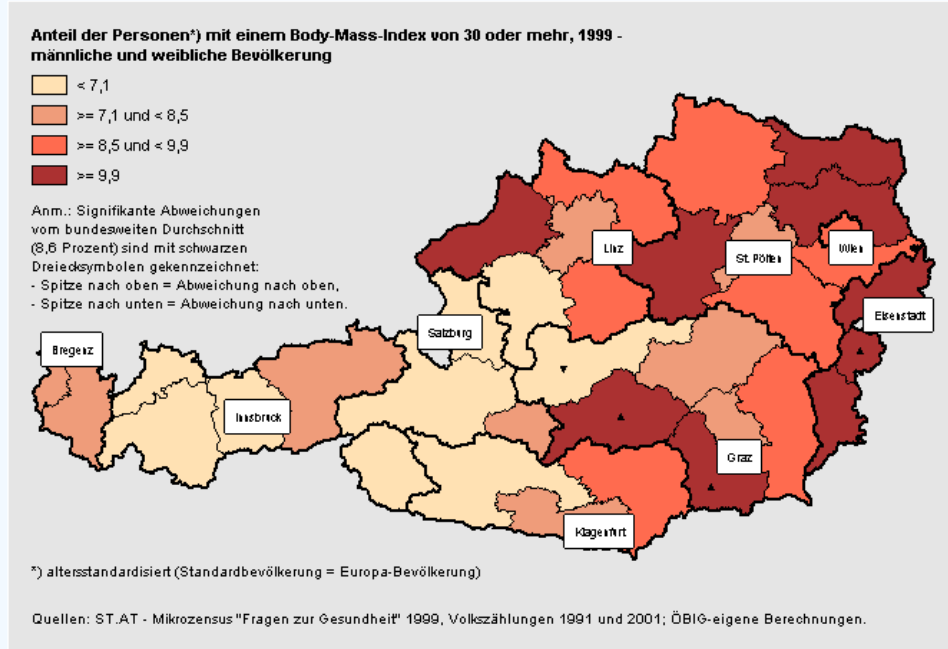
Lifestyle

Karte



Parameter

- **1a Untergewicht**
1999, männlich und weiblich (NUTS-3-Regionen)
- **1b Untergewicht**
1999, männlich (NUTS-3-Regionen)
- **1c Untergewicht**
1999, weiblich (NUTS-3-Regionen)
- **2a Adipositas**
1999, männlich und weiblich (NUTS-3-Regionen)
- **2b Adipositas**
1999, männlich (NUTS-3-Regionen)
- **2c Adipositas**
1999, weiblich (NUTS-3-Regionen)
- **3a Rauchen: Personen, die nie geraucht haben**
1999, männlich und weiblich (NUTS-3-Regionen)
- **3b Rauchen: Personen, die nie geraucht haben**
1999, männlich (NUTS-3-Regionen)
- **3c Rauchen: Personen, die nie geraucht haben**
1999, weiblich (NUTS-3-Regionen)
- **4a Rauchen: täglich mehr als 20 Zigaretten**
1999, männlich und weiblich (NUTS-3-Regionen)
- **4b Rauchen: täglich mehr als 20 Zigaretten**
1999, männlich (NUTS-3-Regionen)
- **4c Rauchen: täglich mehr als 20 Zigaretten**
1999, weiblich (NUTS-3-Regionen)
- **5a Sport und Bewegung zur Gesunderhaltung**
1999, männlich und weiblich (NUTS-3-Regionen)
- **5b Sport und Bewegung zur Gesunderhaltung**
1999, männlich (NUTS-3-Regionen)
- **5c Sport und Bewegung zur Gesunderhaltung**
1999, weiblich (NUTS-3-Regionen)



Für Rückfragen wenden Sie sich an:
 ÖBIG (Österreichisches Bundesinstitut für Gesundheitswesen)
 DI Petra Winkler, winkler@oebig.at, Tel: +43-1-51561-219 oder
 DI Anton Hlava, hlava@oebig.at, Tel: +43-1-51561-269

Weitere Informationen unter: www.statistik.at

ICT for Health and Environment



Health determinants according to EC

- Lifestyle

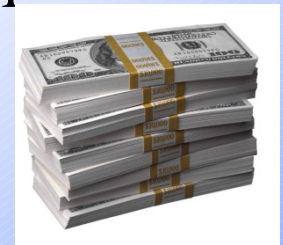


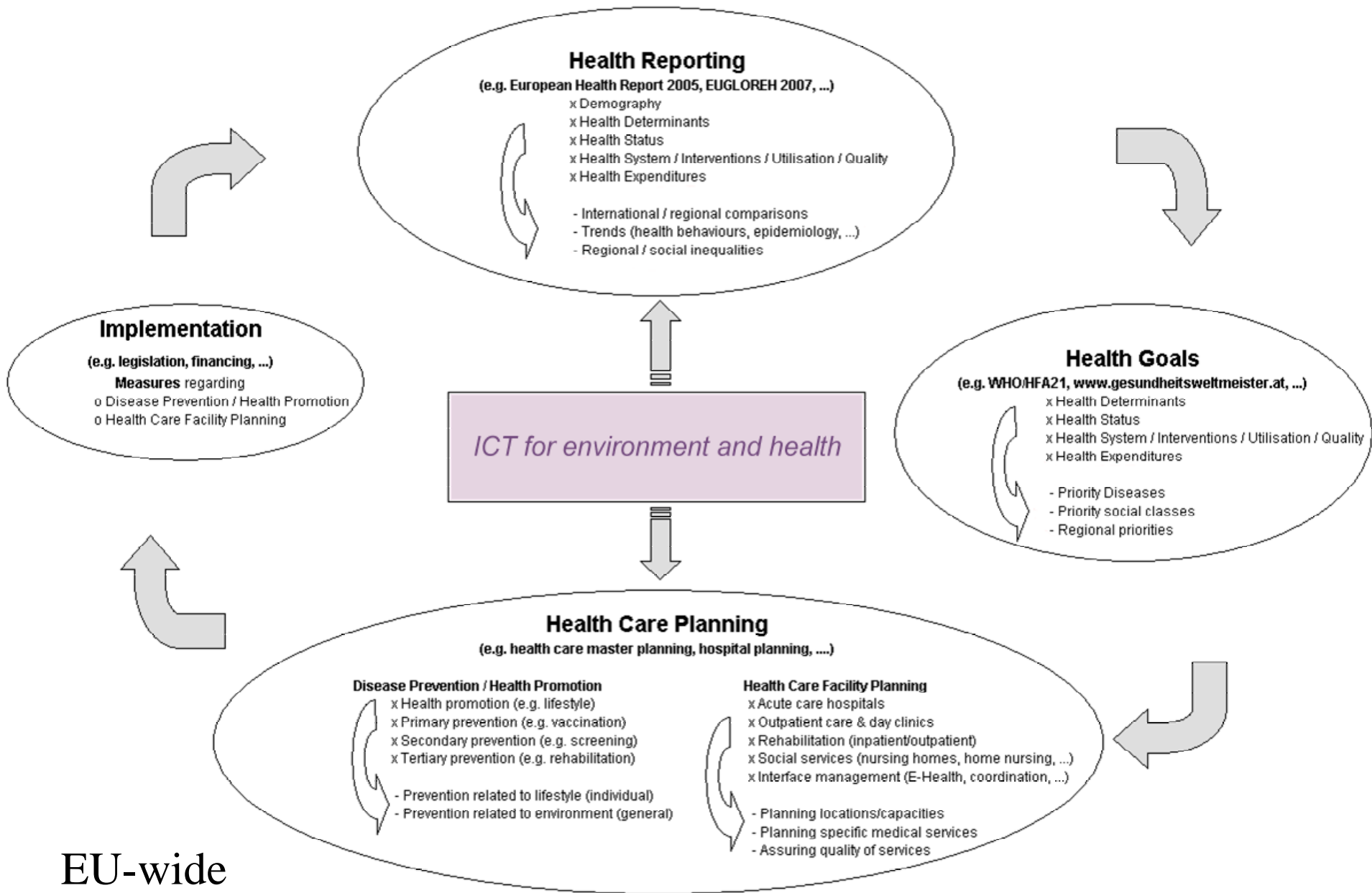
- Socio-economic determinants of health – health inequalities

- Environment



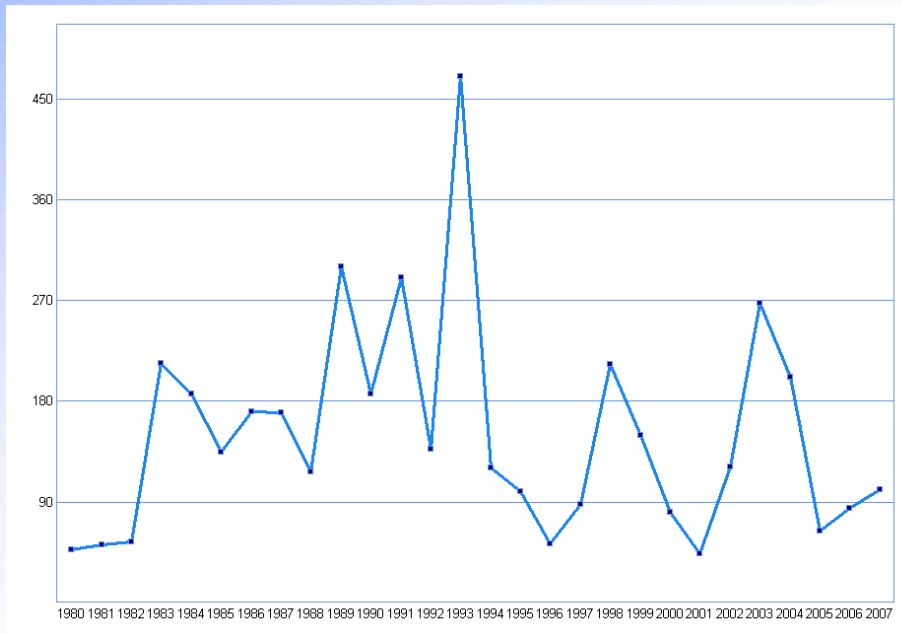
- Genetic and Screening



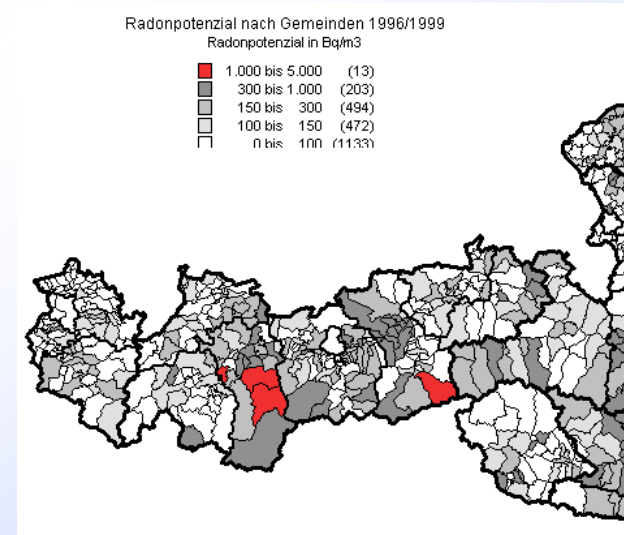


EU-wide
 „Public Health Action Cycle“

ICT for Health and Environment



Standardized mortality rates for lung cancer in Umhausen 1980-2007



Radon level in the area

ICT for Health and Environment



FP7 project **ICT ENSURE**

ICT Environmental Sustainability Research

www.ict-ensure.eu

- Potential of implementing ICT driven systems
- Promote linkage of health and environment
- Results and experience from conducted projects/studies Sustainability Research



Main objectives:

- Overview over existing expertise
- Survey report on projects dealing with „Health & Environment“ using ICT
- Present research programs in a comparable and concise format (template): to share knowledge
- Create a network of leading experts in the field of Environment and Health

ICT for Health and Environment



Public Health
EUROPA > European Commission > DG Health and Consumer Protection > Public Health > Health Determinants > Environment
Overview of Health Strategy Health Programme Health Information Threats to health Health determinants Health systems

Environment
The presence of natural or man-made hazards is a source of environmental diseases, which might be seen as the v

- Ou
- No
- Ind
- Wa
- Ele
- Ch

The impac



Health topics
Environmental
Programmes and p
▶ Air quality and heal
▶ Chemical safety

ENHIS EUROPEAN ENVIRONMENT AND HEALTH INFORMATION SYSTEM

Home

- Environment and health issues
- Health effects of the environment
- Country information
- Environment and health policy
- Methods and tools
- Links

The European Environment and Health
Comparable information on environment

Norwegian Institute of Public Health

Search

- English version
- Key statistics
 - Health Stat
 - Mortality
 - Risk and pro
 - Lifestyle
 - Biological

Drinking water quality

EUPHIX
European Union Public Health Information System

Home > EUphact > Health Status > Mortality > Infant mortality

Infant mortality

Remarks

Number of deaths under 1 year, per 1000 live births, for selected ISARE health regions, 19

Country	Region
---------	--------

et involved News & Events About NICE

Home > Our guidance > NICE guidance by type > Public health guidance > Changing the physical environment to

Changing the physical environment to prevent skin cancer

Guidance on making physical changes to the environment to prevent skin cancer: NHS and

Status: Referred

Expected date of issue: Mai 2011

ICT for Health and Environment



Thank you for your attention!

wirl@goeg.at