Lunch-time presentation at the

Netherlands Interdisciplinary Demographic Institute (NIDI)

Lange Houtstraat 19
2511 The Hague
The Netherlands

Tuesday, 27 July 2010 12:00

Spatial aspects of fatal burn and fall injuries in older adults in South Africa

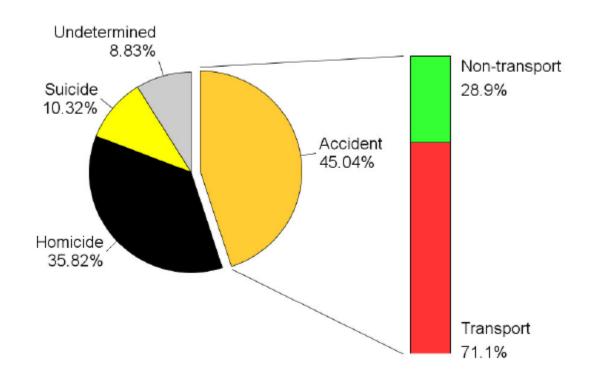
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Human Sciences Research Council, Port Elizabeth Postgraduate Student, University of Pretoria



Fatal injuries in South Africa

Homicide is a significant cause of death (2007)



Source: NIMSS, 2008

Manner of death by age

The average age of the victims was 33.2 (± 16.3 years). The leading manner of death(s) amongst the:

- **0-14** age group was other unintentional (36%) followed by transport (33.8%);
- 15-24 age group was violence (48.3%);
- **25-34** age group was violence (43.6%) followed by transport (30.7%);
- **35-44** age group was violence (36.4%) followed by transport (35.3%);
- **45-54** age group was transport (36.2%);
- **55-64** age group was transport (37.4%); and
- 65+ age group was transport (33%).

Source: NIMSS, 2008

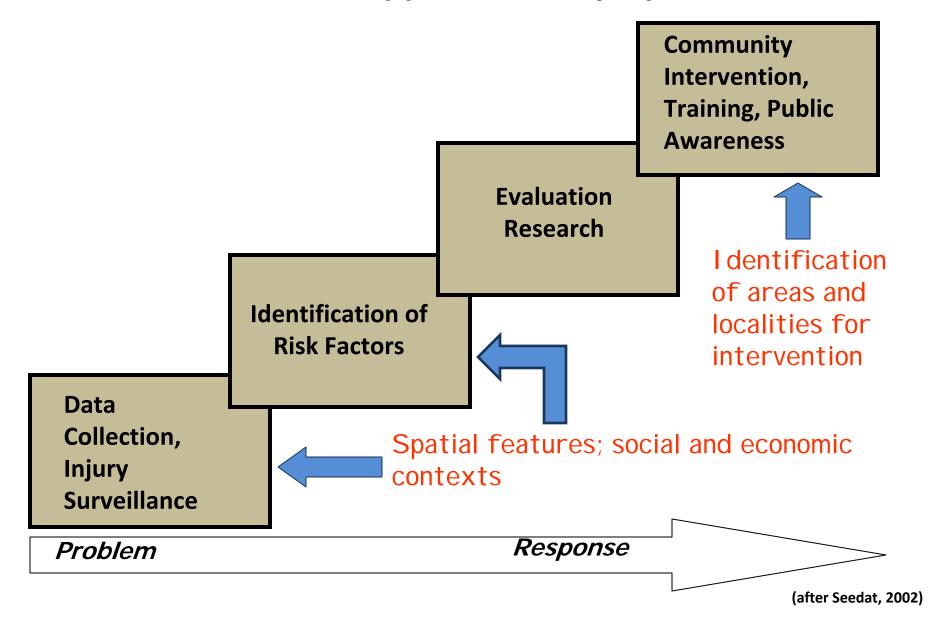
Aim of the project

To establish a Geographical Information System (GIS) database for fatal injuries on victims 50 years and older, from geographical elements recorded by the National Injury Mortality Surveillance System (NIMSS) in South Africa.

Objectives of the project

- Extract geographical elements from NIMSS data
- Edit geographical element names to match those in place-name databases available from Statistics South Africa (Stats SA)
- Assign Stats SA place-names to NIMSS cases
- Aggregate the available NIMSS data for burns and falls - to individual geographical or mapping units
- Link the aggregated injury data to geographical units to create a basic GIS database on injury in older adults
- Create sample outputs on the geographical distribution of injury

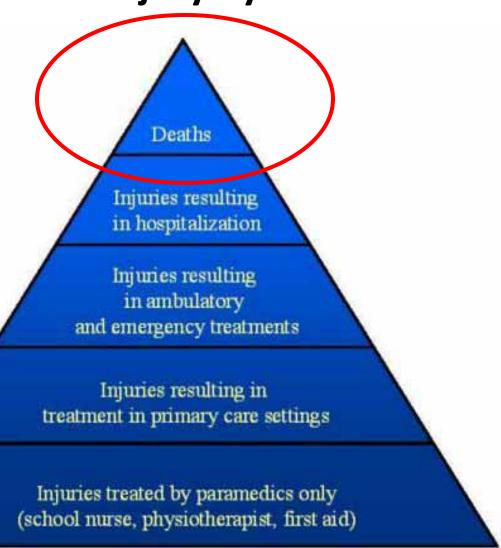
Spatial analysis in injury research – The Public Health Approach to Injury Prevention



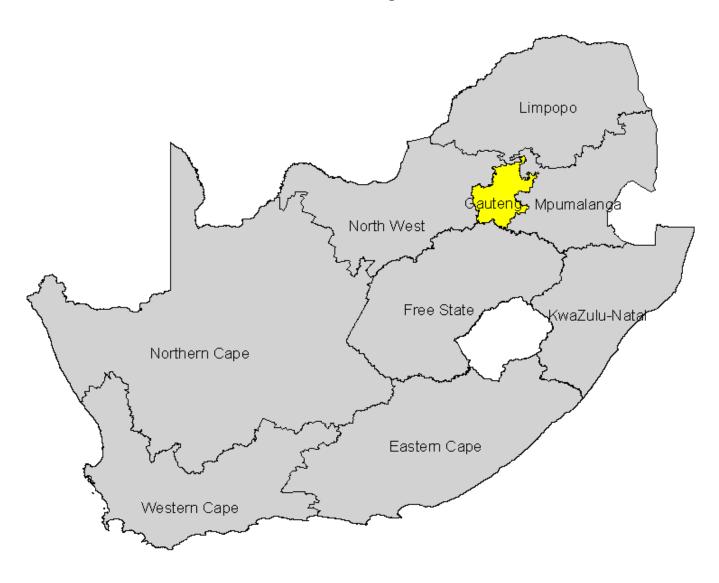
National Injury Mortality Surveillance System (NIMSS) - South Africa

- NIMSS is the only 'who, what, where, when and how' fatal injury surveillance system
- The first NIMSS report included 14897 injuries for 1999, at 10 mortuaries across five provinces
- Second NIMSS: 2000, 18876 injuries, 15 mortuaries, five provinces
- Third NIMSS: 2001, 25361 injuries, 32 mortuaries, six provinces
- Current NIMSS is the ninth report: 33513 injuries in 2007: 39 mortuaries, seven provinces
- In consultation with NIMSS only data for 2001 & 2002 was available

The Injury Pyramid



South African provinces

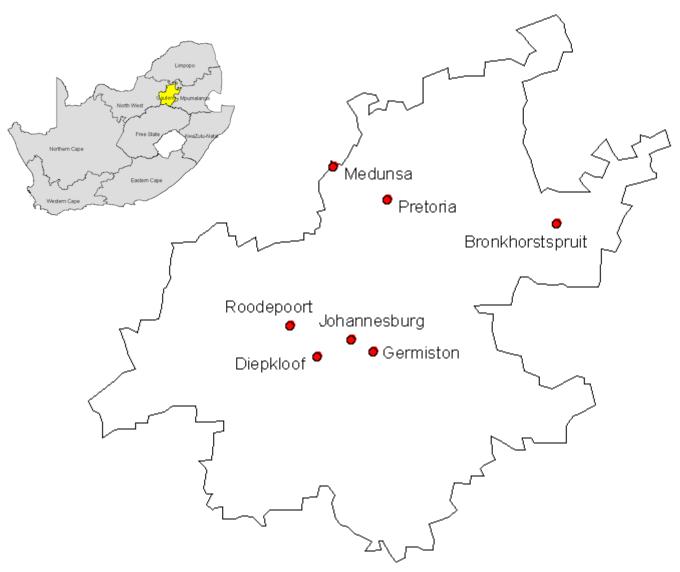


NIMSS Data for Gauteng

- NIMSS data collection form lists 29 options for External Cause or Circumstance of Injury
- Based on the International Classification of Diseases (ICD-10)
- The smallest spatial unit recorded on the NIMSS Data Collection Form is a Suburb or District

	NIMSS DATA COLLECTION FORM	
	Mortuary Police No. Officer collecting body (turners)	
	PM no. PM Date P Pathologist (turners)	
	Date & Time of Injury Race A B C W V Sex M F V	- Age
	Date & Time of Death Age	_
Province ———	Medical beatment of injury prior to death (check only ONE). 1 Nove 2 Energetry care at some 3 Huspital care Province of injury (may differ to province of death) Scene of injury (may differ to scene of death)	
Province ———	1 Gedens 7 Mouralings 1 Photos Issues B yard (Inc. pool) 6 Medical nervice area	
	2 W. Cigne 8 Partners Province 2 Residential institute 10 Industrial & assets above annual rate of the Industrial & assets above annual rate of the Industrial & assets above annual rate of the Industrial & Industrial & assets above annual rate of the Industrial & Industrial & assets above annual rate of the Industrial & Industrial	
<u>_</u>	4 E. Cape 10 Unicom 3 Ray shateen MCNA date: 12 See, bee, then then date: 1 N. Cape 11 Other (specific) 4 Anniument park, sports and 13 Open land, booch	
Town,	6 Free-State 6 ProductionChapters 14 Country/des Town of Injury 8 Harrow track, control 16 In custody, prison	
suburb, —	Suburb or district 7 Dog, ben, retail ans 10 Place uninown	
-	Closest police station 8 School escalared was 17 Char (specify to injury scene	
district,	External Cause or Circumstance of Injury	
police area	Passers Discharge 1	External Cause of Injury 8 - Burns; 9 - Falls
	Apparent Manner of Death I remission 2 Supple 3 Account 4 Februa 1 Undepartment Samples Taken (check all)	
	Alcuhol and Other Substances (for completion by surveillance consortium staft)	
	Blood Movins Lone) [1] Eye Floor Abdred [1] Other Substraces (Gpeth))	
	Type of Intentional Violence Perpetrator – Victim Relationship I Interpression	
	Context of Violent Attack (Code from court record)	
	9 SA Voluce and Egizy Servi Bine: Convertion Qd: 421-418-4864, 811-627-8142).	

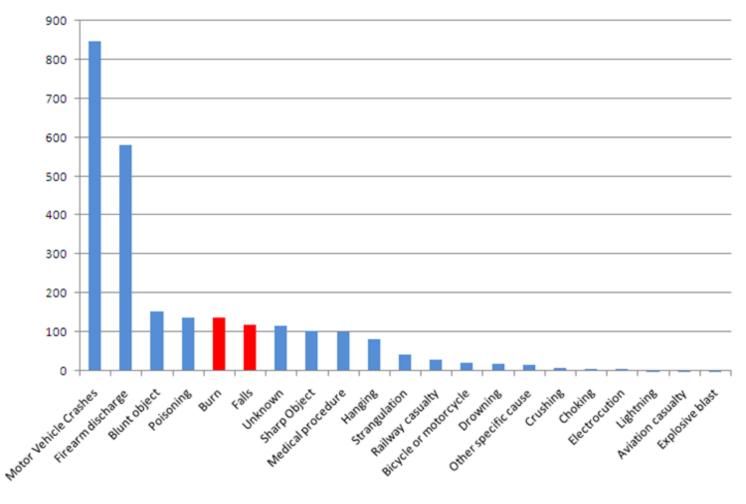
NIMSS Mortuaries in Gauteng – 2001/2



NIMSS Data for Gauteng (All): 2001/2

Apparent Manner of Death	Frequency	Percentage	
Homicide	9300	38.0%	
Suicide	2542	10.4%	
Accident	8664	35.4%	
Natural	2031	8.3%	
Undetermined	1955	8.0%	
Total:	24492	100.0%	

External causes of non-natural deaths (Gauteng)



Persons 50 years & older; n=2511

Race & Gender of burn and fall victims (>=50 years) – 2001/2 (Gauteng)

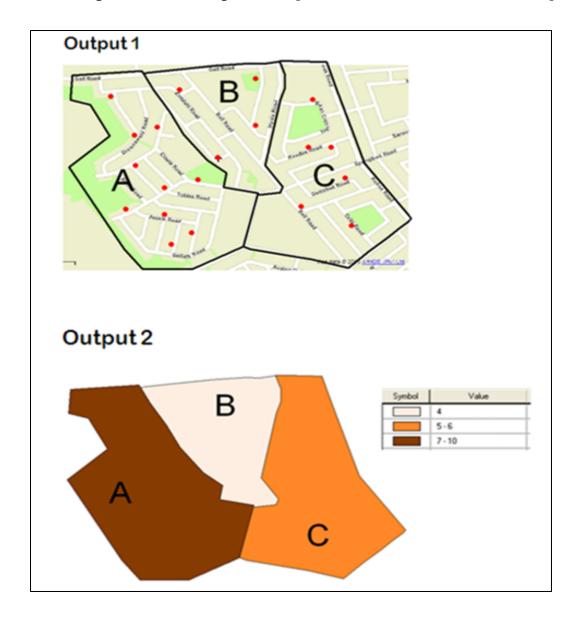
Race/ Gender	Unknown	Asian	Black	Coloured	White	Total
Female	0	0	55	1	46	102
Male	0	1	93	5	38	137
Unknown	1	0	0	0	2	3
Total	1	1	148	6	86	242

- There was a distinct gender and racial profile amongst victims
- Fifty seven percent (57%) were men
- Greatest number recorded were Black/African men (38.4%), followed by Black/African women (22.6%)

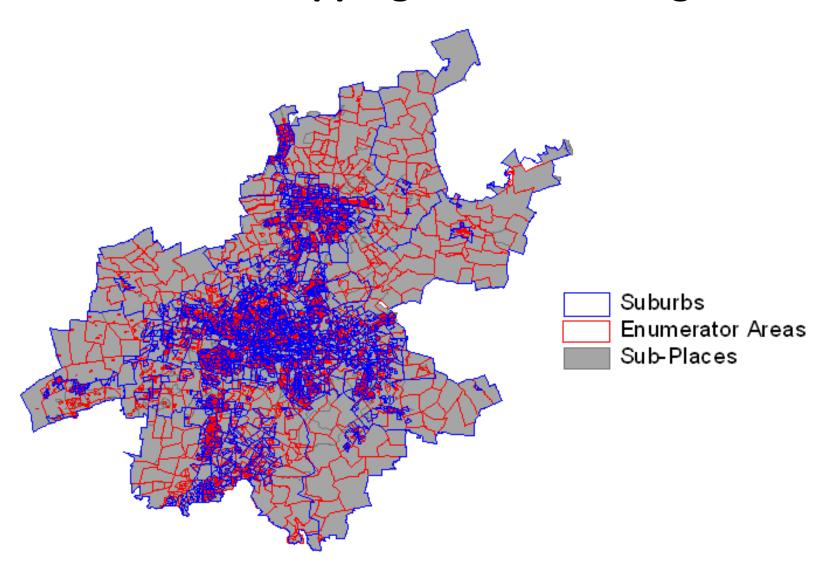
Age categories of burn and fall victims (>= 50 years) (2001/2)

Age group	Frequency		
50-54	53		
55-59	42		
60-64	35		
65-69	30		
70-74	23		
75-79	17		
80-84	22		
85-89	14		
>= 90	6		
Total	242		

Example output (fictitious data)



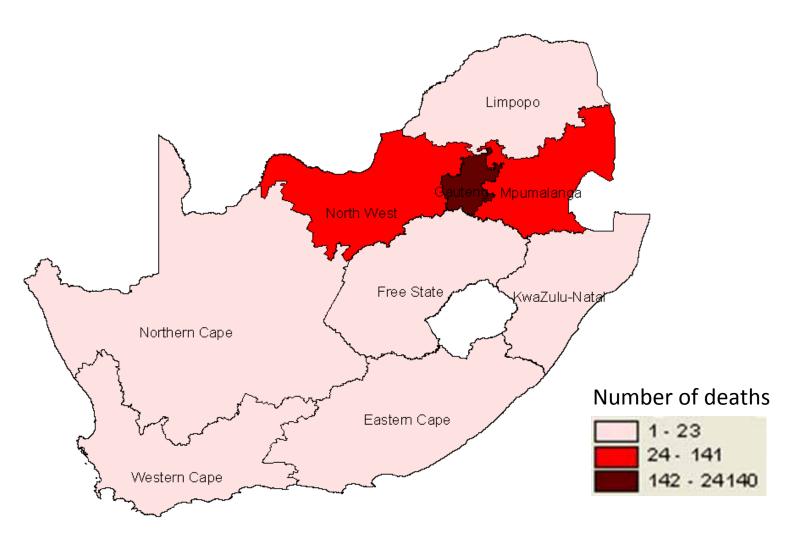
The web of mapping units - Gauteng



Potential of mapping units for spatial analysis of (fatal) injuries

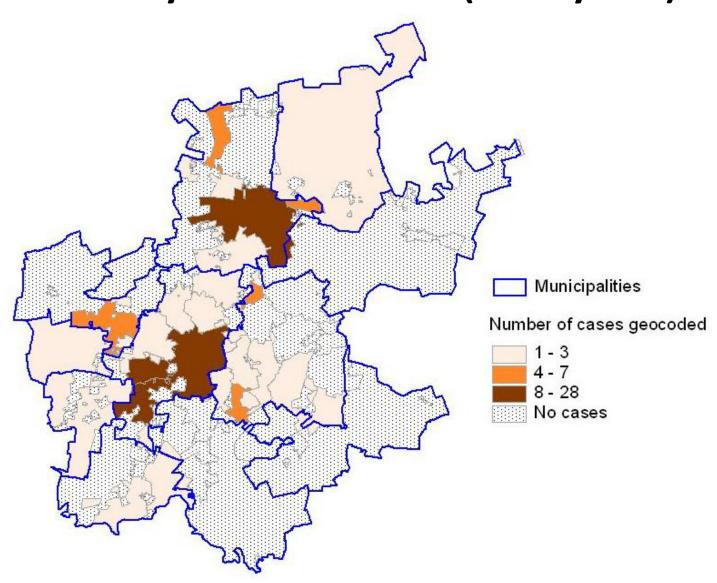
- Suburbs no standing in terms of the population census; has cadastral and property marketing value
- Enumeration areas (EAs) extensive population data, but only published for 1996 census; has numerical identifiers only
- Subplaces output areas for the 2001 census, five provinces, generalized population data, aligned to Main Places of Census 2001

Province of injury: Gauteng Mortuaries (2001/2)

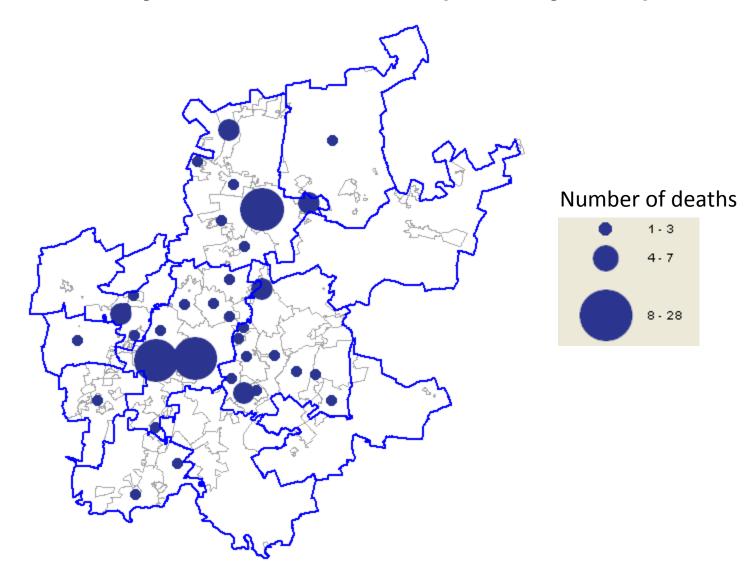


98.6% of injuries originate in Gauteng

Deaths by falls and burns (>=50 years)



Deaths by falls and burns (>=50 years)

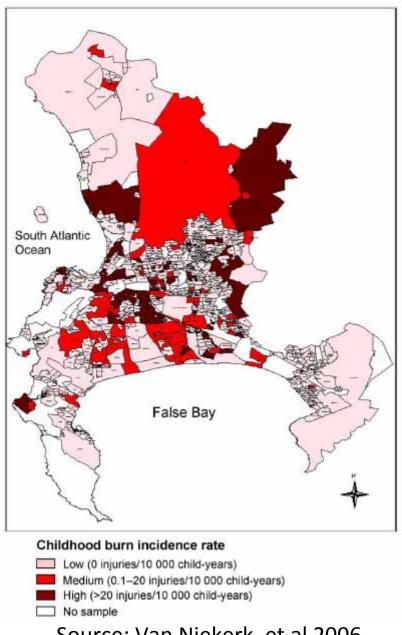


Towards 'Small area analysis'



Figure 2 Neighborhoods of residence for patients hospitalized from an assault injury between March 2001 and March 2006.

Source: N Bell, N Schuurman and S M Hameed (2008)



Source: Van Niekerk, et al 2006

The way forward

- Most recent data on fatal injuries access to NIMSS for 2006 and 2007 for the whole of South Africa is being negotiated; search for a national picture; with inter-city comparisons
- Denominator data suitable population data at an appropriate spatial level will be sought; calculation of rates for comparison
- Identification of socio-economic risks factors housing types, income, age, etc will be extracted; indices to be generated
- Does geography matter? are older people living or working in some places more at risk of injury than elsewhere?

Thank you for your attention!