

Hospital departments

Code

A = Neuro-psychiatric care

C = Surgery (diagnosis & surgery)

D = Internal Medicine (diagnosis & treatment)

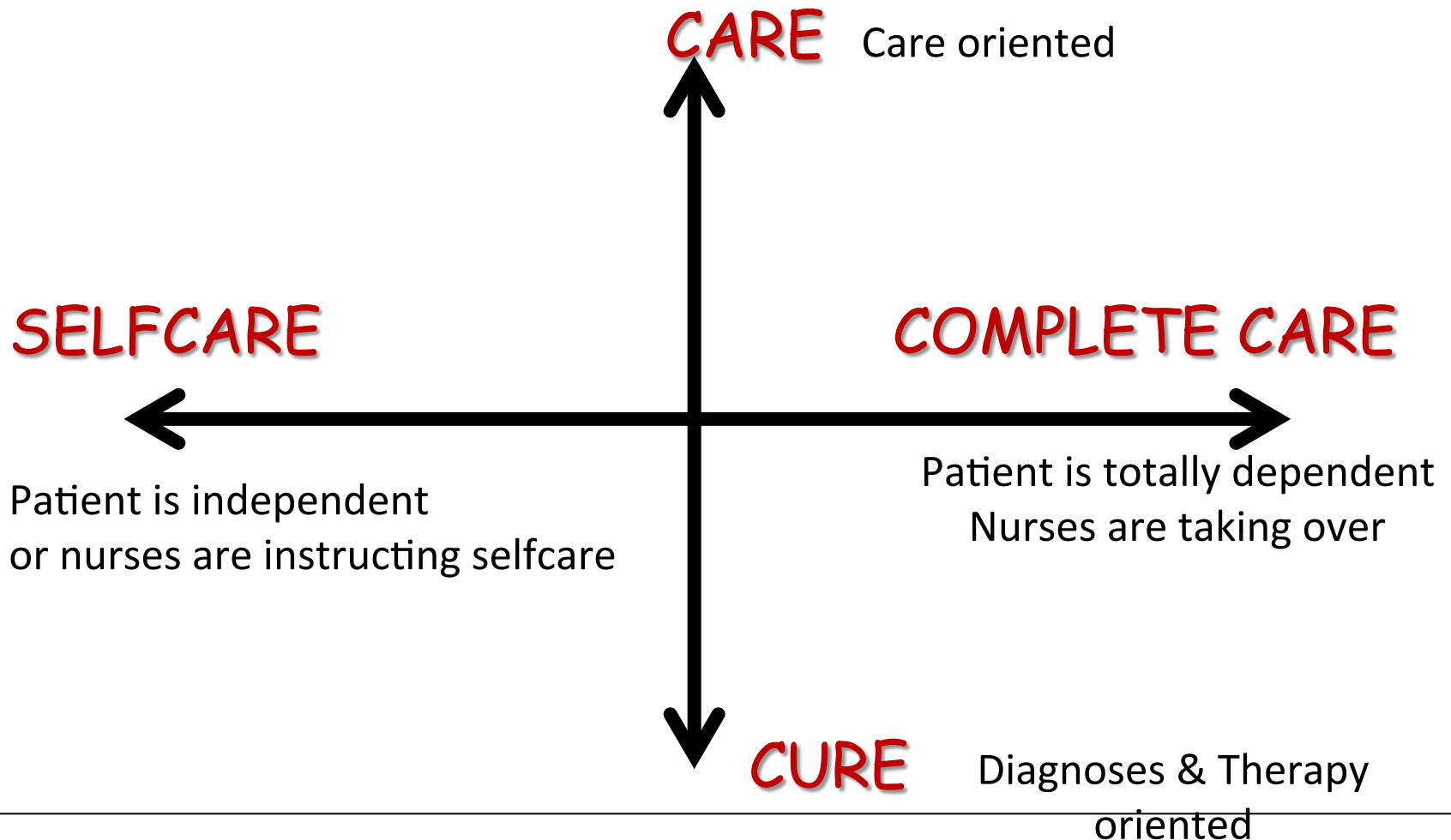
E = Pediatric care

G = Geriatric care

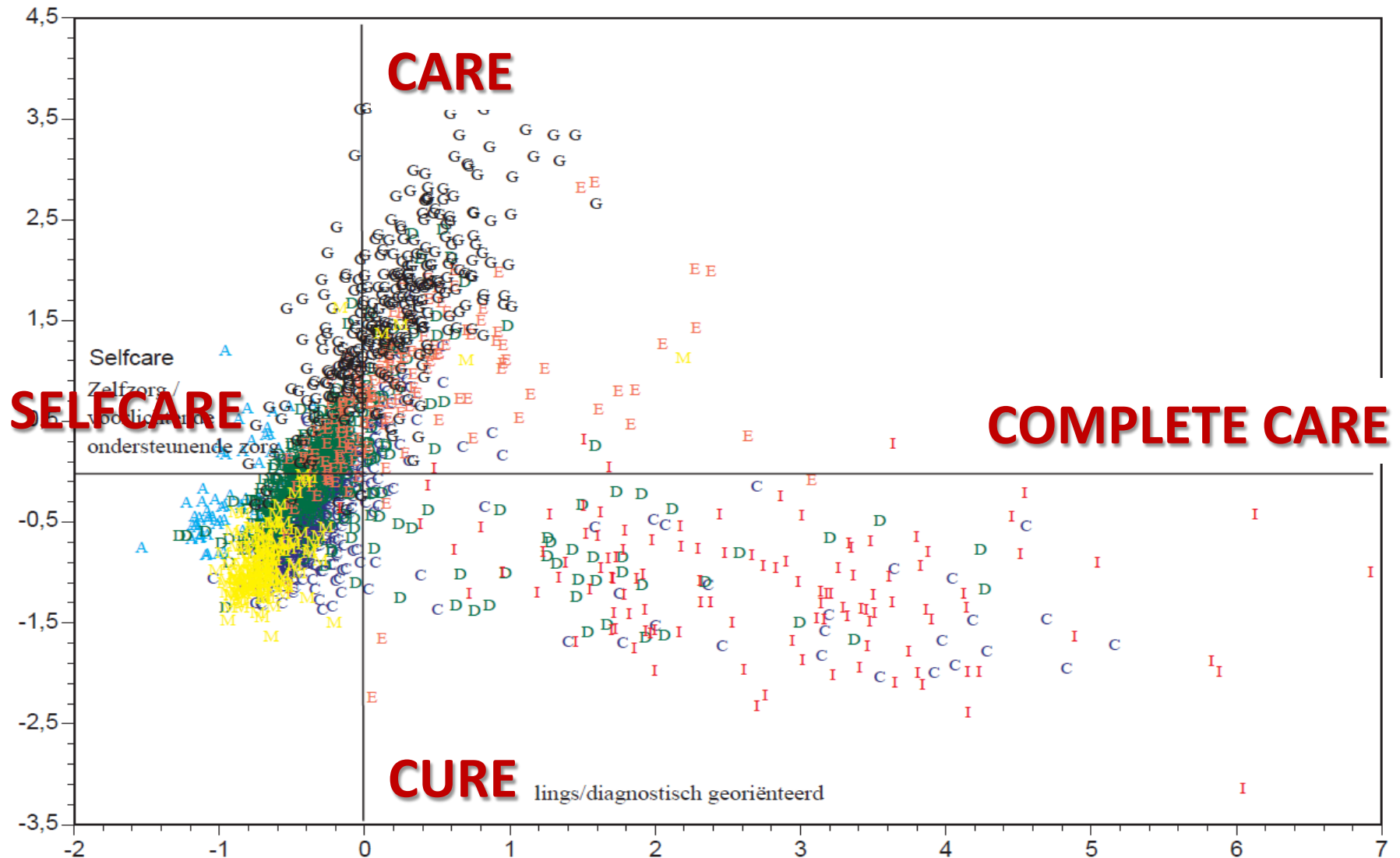
I = Intensive care

M = Maternity

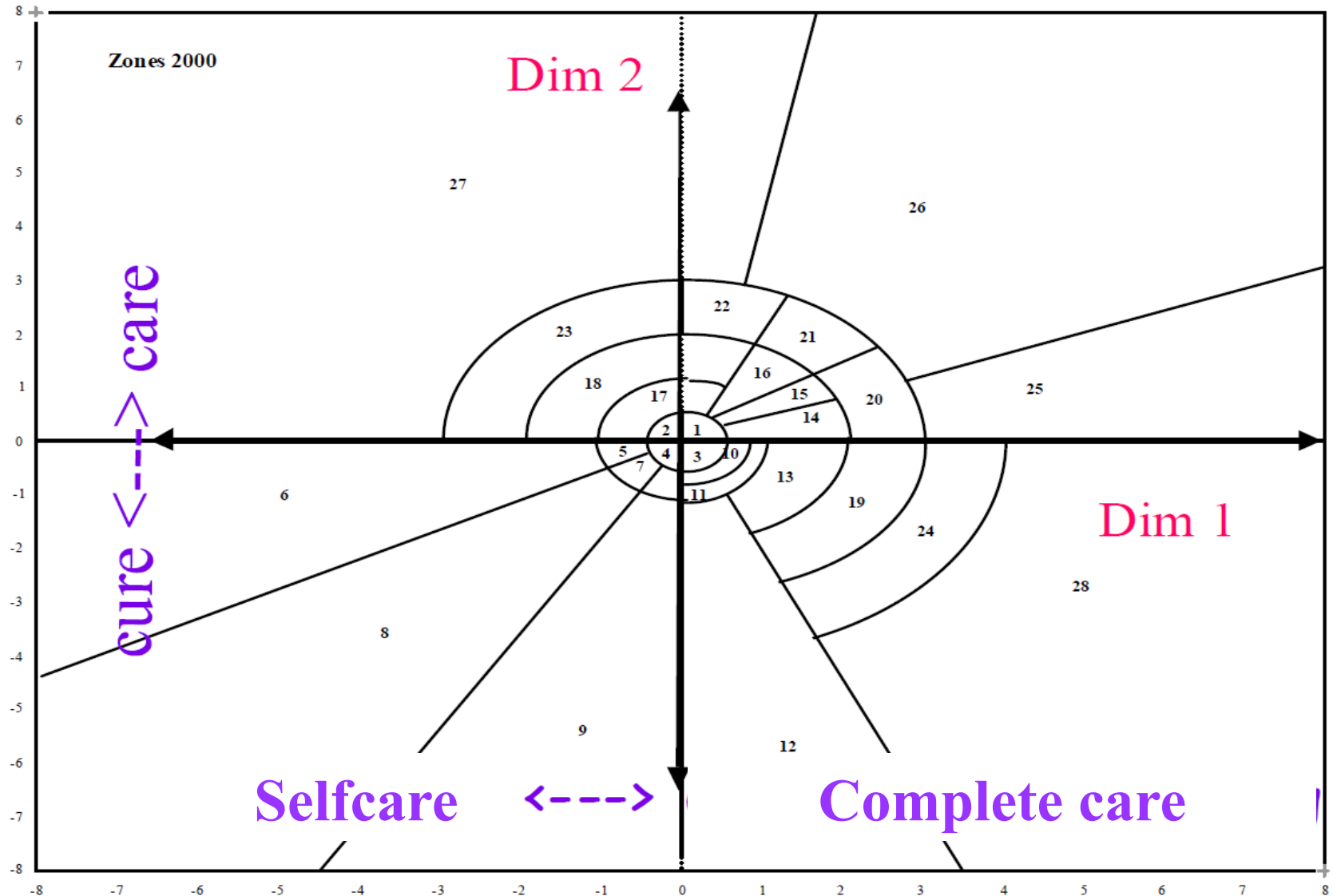
Two dimensions of Nursing care

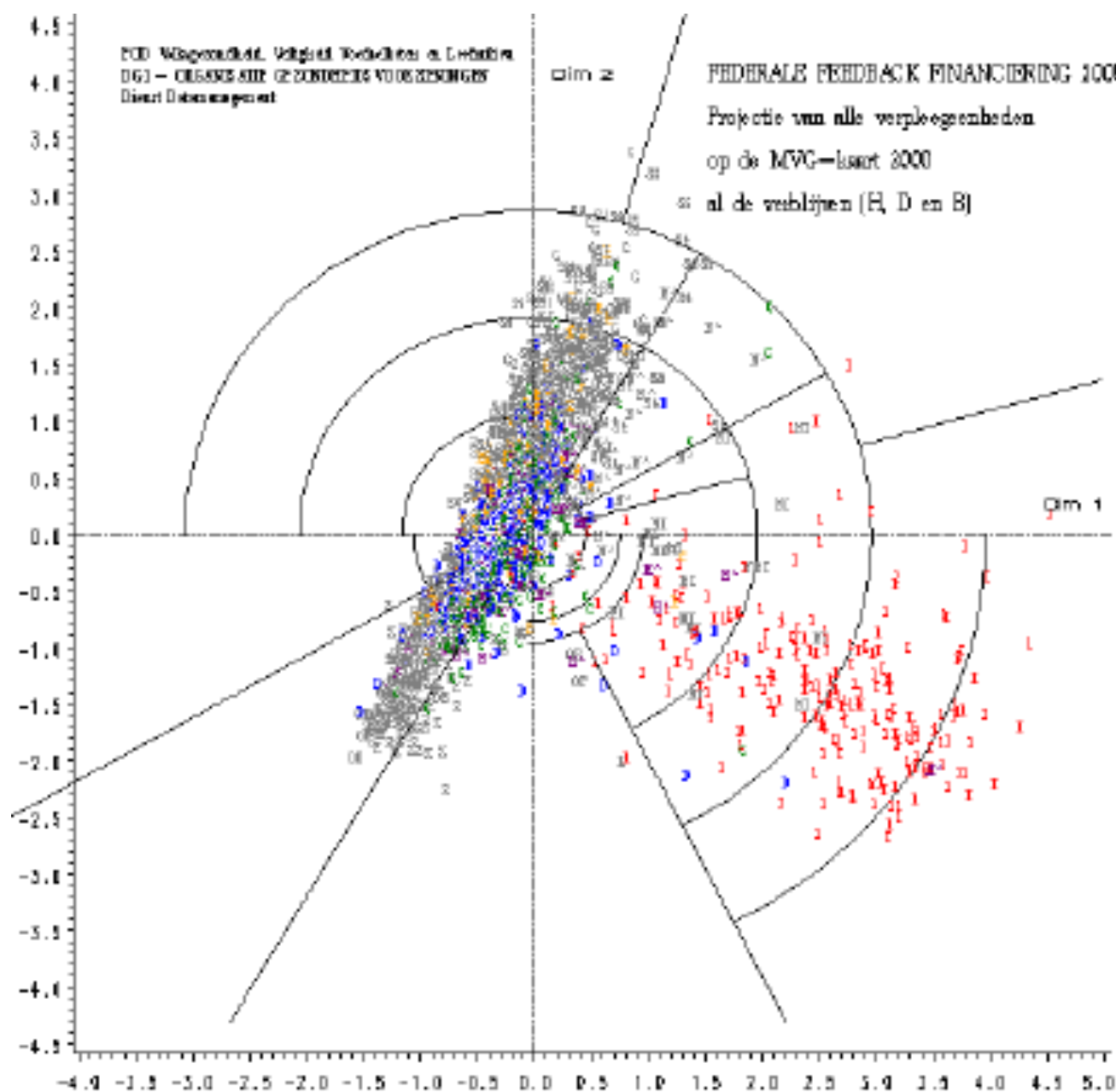


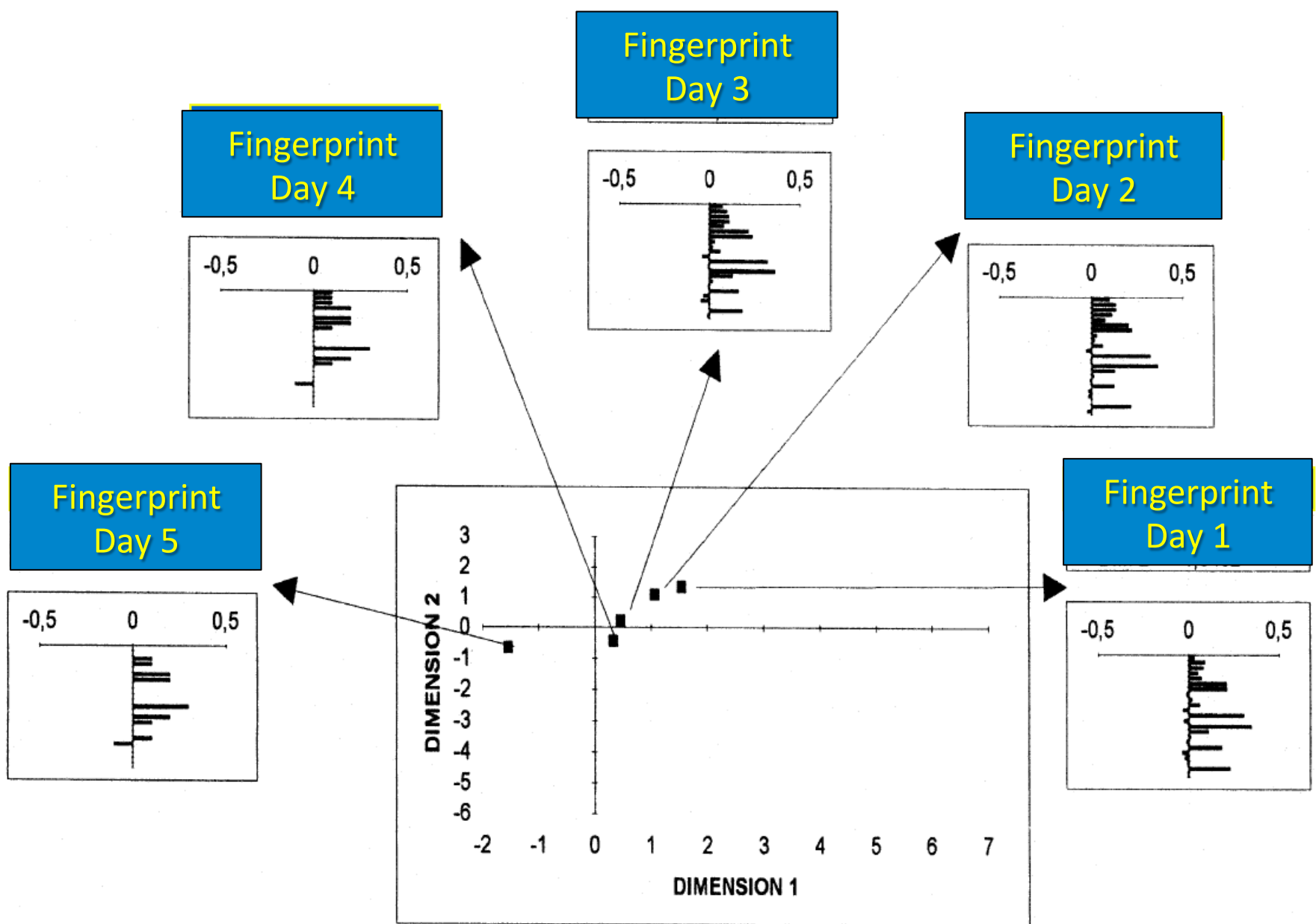
National map



National map devided in zones







Grafical projection of patient Z

4. B-NMDS version 2

- healthcare is evolving rapidly and continuously → implications nursing care
- 23 items of NMDS version 1 (1988) → poor information in the years 2000
- Revision of NMDS 2002 - 2004

4. B-NMDS version 2

Revision NMDS: Phase I (2002)

- Methods:
 - Literature review
 - Secondary data-analysis
- Choice for NIC-framework:
 - Nursing intervention Classification (NIC): 433 interventions in 26 classes
 - Comprehensive, research-based, standardised, international accepted, available in French and Dutch

4. B-NMDS version 2

Revision NMDS:Phase II 2002 – 2003

- Methods:
 - Panels of clinical experts (N= 75)
 - Six care programmes: cardiology, geriatrics, oncology, rehabilitation, paediatrics, intensive care
 - Pre-test in 15 different hospitals
- Results:
 - Alpha version: 105 nursing interventions
 - Definitions & scoring manual

4. B-NMDS version 2

Revision NMDS:

Phase III Pilot testing and tool validation 2003 – 2004

- Methods:
 - Data collection (dec.2003 – march 2004)
 - 30 days of data collection
 - 66 hospitals, 158 nursing wards, 95000 patient records
 - NMDS-I, NMDS-II, DRGs, Financial data (Finhosta), Pharmaceutical data
- Results:
 - Number of interventions/pat/day: Med=14 (1- 43)
 - Time (N= 3504: 42 hospitals, 81) wards: Med= 4' (IQR=3'- 7')
 - Interrater reliability (9 cases, 66 raters): Above 70% for 80% of the interventions

4. B-NMDS version 2

Revision NMDS: Phase IV Validity testing

- Criterion-related validity:
 - comparing NMDS-II with NMDS-I
 - 21146 patient records
 - Correlations from 0,88 (tube feeding) to 0,16 (emotional support)
- Construct validity:
 - Principal component analysis (CATPCA)
 - Intra-class and interclass analysis
 - Latent variables: nursing intensity, care/cure
- Face validity:
 - Expert panels (2004/11) are validating final NMDS-II

4. B-NMDS version 2

Final version:

- 78 nursing interventions
- Based on NMDS version 1 and NIC
- 2 sets of nursing data:
 - Core data (comparing between care programs)
 - Supplementary data (care program specific)
(comparing within care programs)
- Linked with CMDS (based on ICD-10-CM);
registration started in 1990; linked since 2007

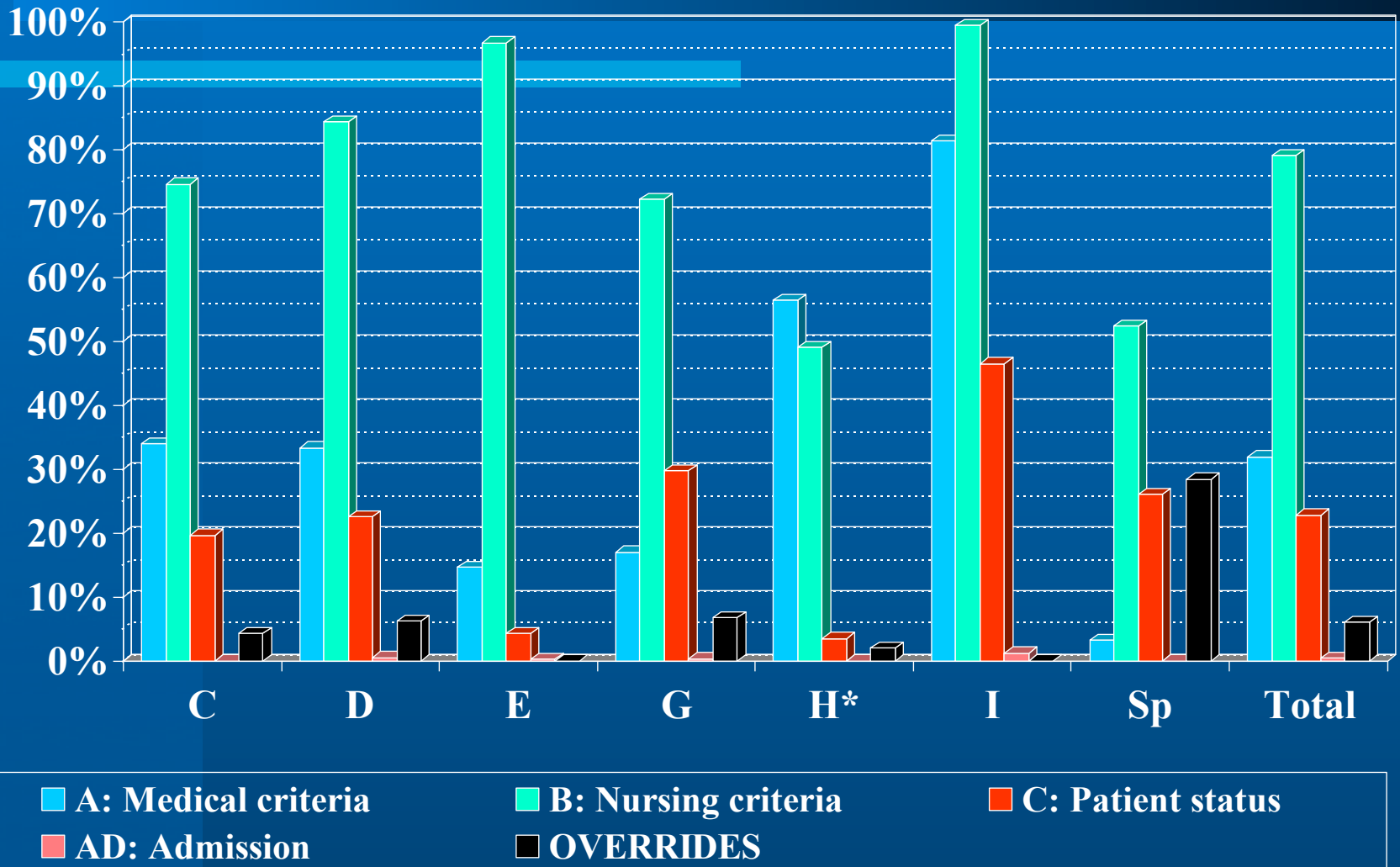
4. B-NMDS version 2

From data to applications:

- **Appropriateness Evaluation protocol (AEP)**
 - Nursing care explains 80% of stay in hospital
 - In B-NMDS: 8 nursing interventions support AEP
- **Nurse Staffing**
 - Validating patients' nursing care profiles in relation to nurse staffing ratios
 - Selection of key-interventions for nurse staffing
- **Reimbursement / funding**
 - Nurse staffing & nursing care profile per DRG
- **Quality Management**
 - Nurse staffing sensitive patient outcomes (Needleman et.al. 2002)
 - Relation: Nurse intervention – patient problem

B – NMDS II

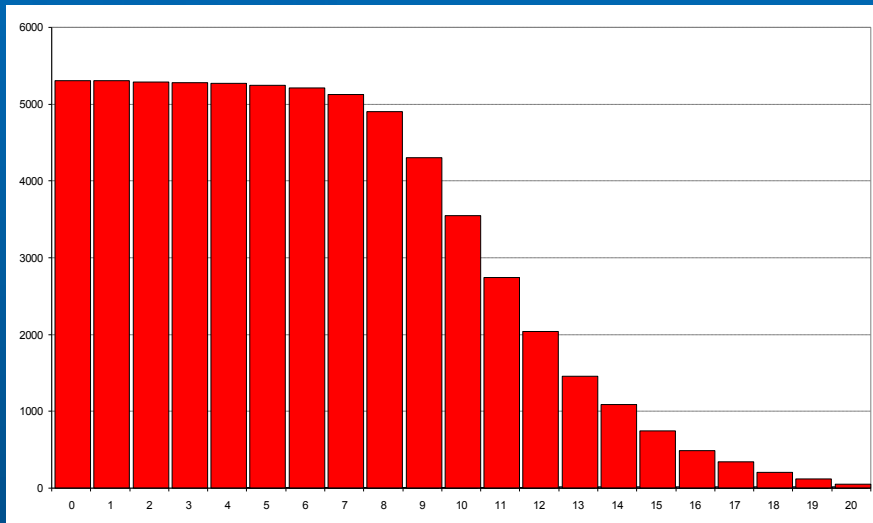
EXPLAINING APPROPRIATE STAY



Source: Gillet et.al., 2004

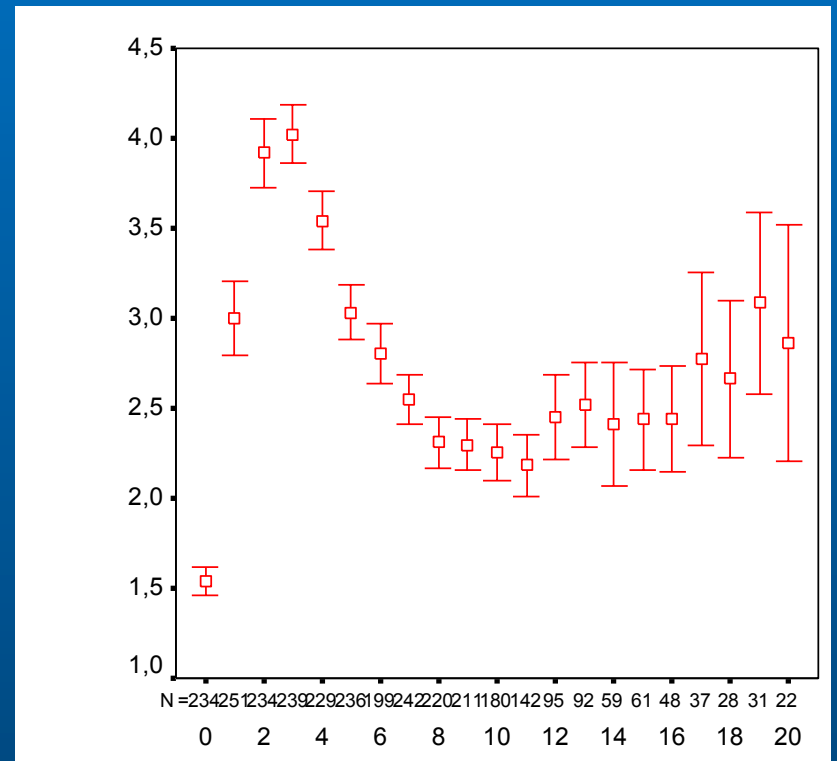
Linking NMDS and DRGs

N patients / days-of-stay



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Nursing profile / day-of-stay



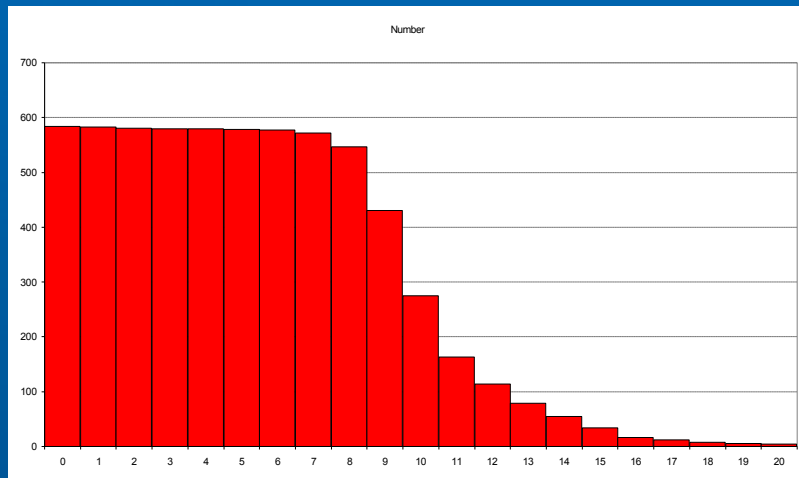
Data: DRG 166, Coronary Artery Bypass Graft (CABG) without cardiac catheterisation

Y2000 Belgian data, 5575 admissions, 74925 inpatient days, 2670 linked

Per Hospital; for DRG166

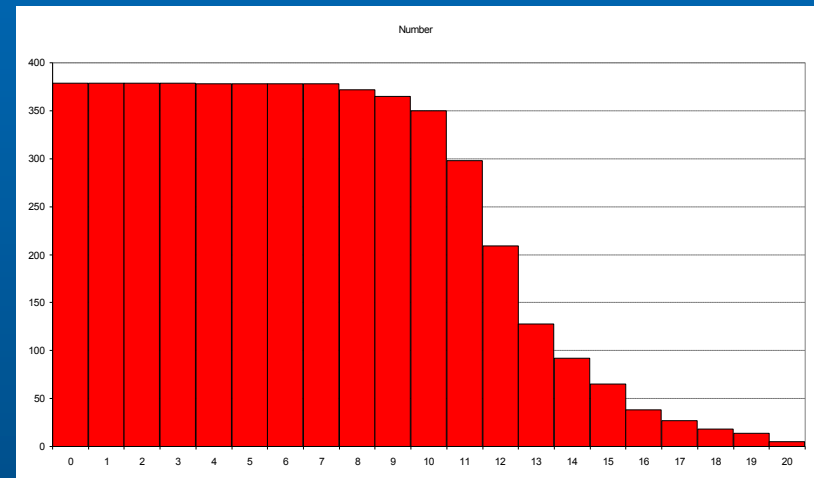
Comparing 2 hospitals A - B

Hospital A:
Median LOS=9 days



Number of admission: 584/y
Number of inpatient days: 6377
N in NMDS: 399 (6,2%)

Hospital B:
Median LOS=12 days



Number of admission: 379/y
Number of inpatient days: 5009
N in NMDS: 322 (6,4%)