



institute of Health Policy & Management

*A European Perspective
on
OR in Health*

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Seminar Operations Research in Health Care
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Contents



- Introduction
 - Health OR
 - ORAHS
- Review
 - Framework of analysis
 - Methodology
- Results
 - Development ORAHS
 - Trends in papers
- Discussion
 - Challenges
 - Conclusions



Introduction

Health OR – ORAHS

Health OR



- Remarkable development of Health OR:
 - Major industry
 - Rising costs
 - Paradigm shift in service concept
- Increased popularity of Health OR
 - in numbers of applications
 - in scope of topics

EWG ORAHS



- EURO Working Group on Operational Research Applied to Health Services
- Domain specific working group, under the umbrella of EURO
- Emphasis is on Applied OR

ORAHS 1975: the start



- September 1975: First meeting in Exeter, UK
- Organized by Duncan Boldy
- 14 participants from 6 countries
- Mix of academics and practitioners

- Objectives
 - Coordination and dissemination on health OR work in Europe
 - Organisation of seminars on specific topics
 - Setting up joint projects

ORAHS 1977: format meeting



- Separate meeting from EURO meetings
 - More informal discussion oriented setting, open to practitioners
 - Local organizer can tailor the meeting to health care system needs
- Arrangements for meetings
 - Limitation of attendees to about 30 to preserve informal nature of meeting
 - More time for presenting (20-30 minutes) and discussion (15 minutes)
 - Three working days with one break in the middle for social activities (site visit of a health service, outing)
- ORAHS as Research Family

ORAHs: activities



- Books: Boldy 1990
Operational Research Applied to Health Services
- Proceedings: first in 1991 (Wroclaw meeting, Marek Lubicz)
From 1995 onwards standard proceedings
- Special Issue Numbers: EJOR (1987, 1997, 2003), JORS (2007), Health Care Management Science (2009) and others
- Workshops with healthcare managers
Altavilla 1984: one day during the meeting
Leeds 1987: 2 day stand-alone workshop
Wroclaw 1990, Veldhoven NL 1991, Sydney 2000



Review

Framework of analysis - ORAHS

Review



- Questions to be answered
 - What are the developments in ORAHS as EWG?
 - What are the developments in papers presented at ORAHS meetings?
 - What are challenges for health OR?
- Papers presented 1975-2009
- Invited Review EJOR
- Co-author Sally Brailsford

Criteria for analysis ORAHS papers



- Applied OR
 - Collaboration practitioners - academics
 - Analysis not technique oriented but user (setting) oriented
- Dimensions of the framework
 - Stages in product / service life cycle
 - Level of process in health care system

Stages service life cycle



1. Identifying consumer needs for a health service
2. Developing a new service
3. Forecasting the demand
4. Securing resources
5. Allocating resources
6. Developing programs and plans for deployment of resources
7. Developing criteria for delivery performance
8. Managing the performance of delivery
9. Evaluating the results of delivery

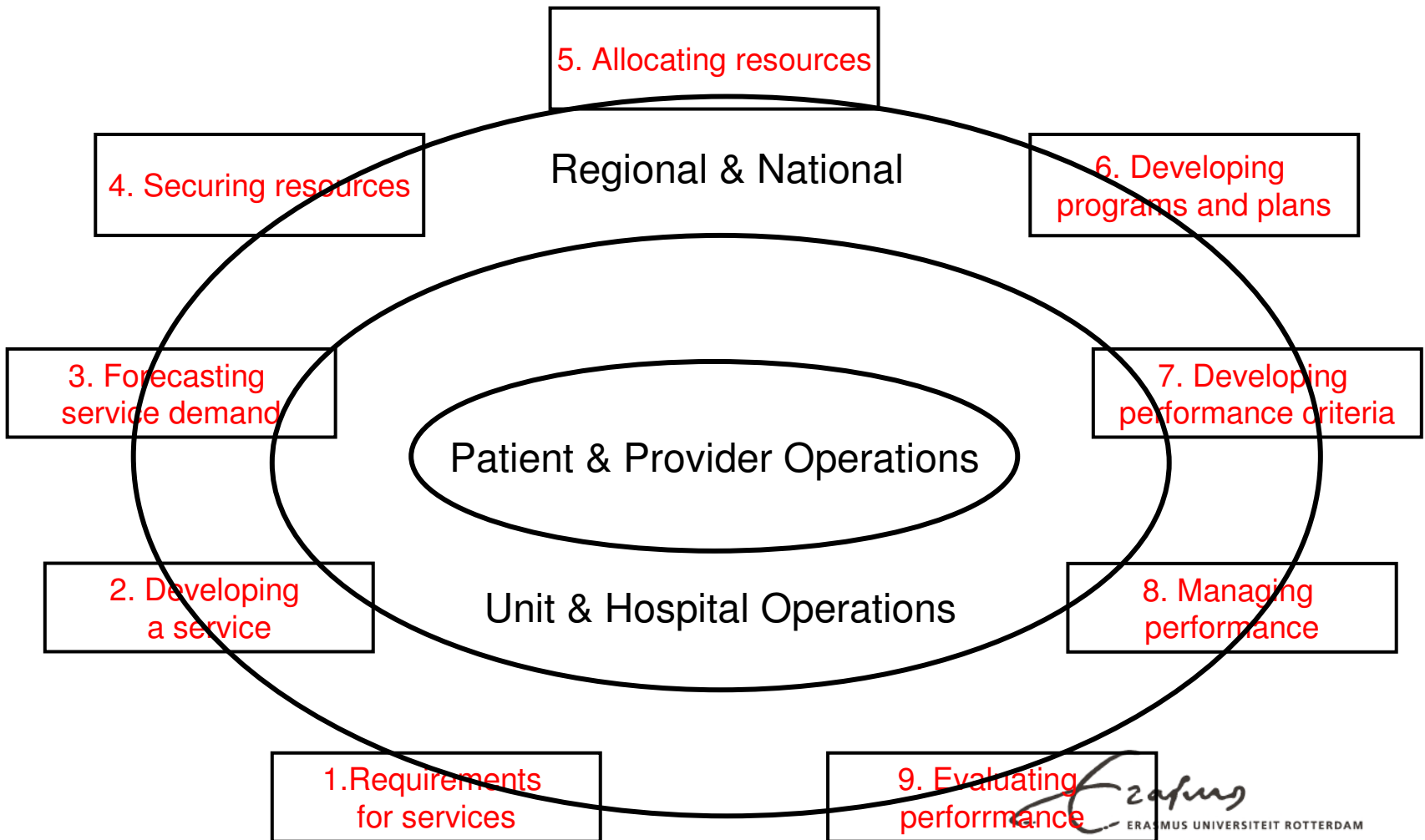
Levels of process in health care



1. Patient and Provider level
2. Unit and Hospital level
3. Region and National level

NB Not the same as operational-tactical-strategic

Framework for analysis



Interpretation of papers



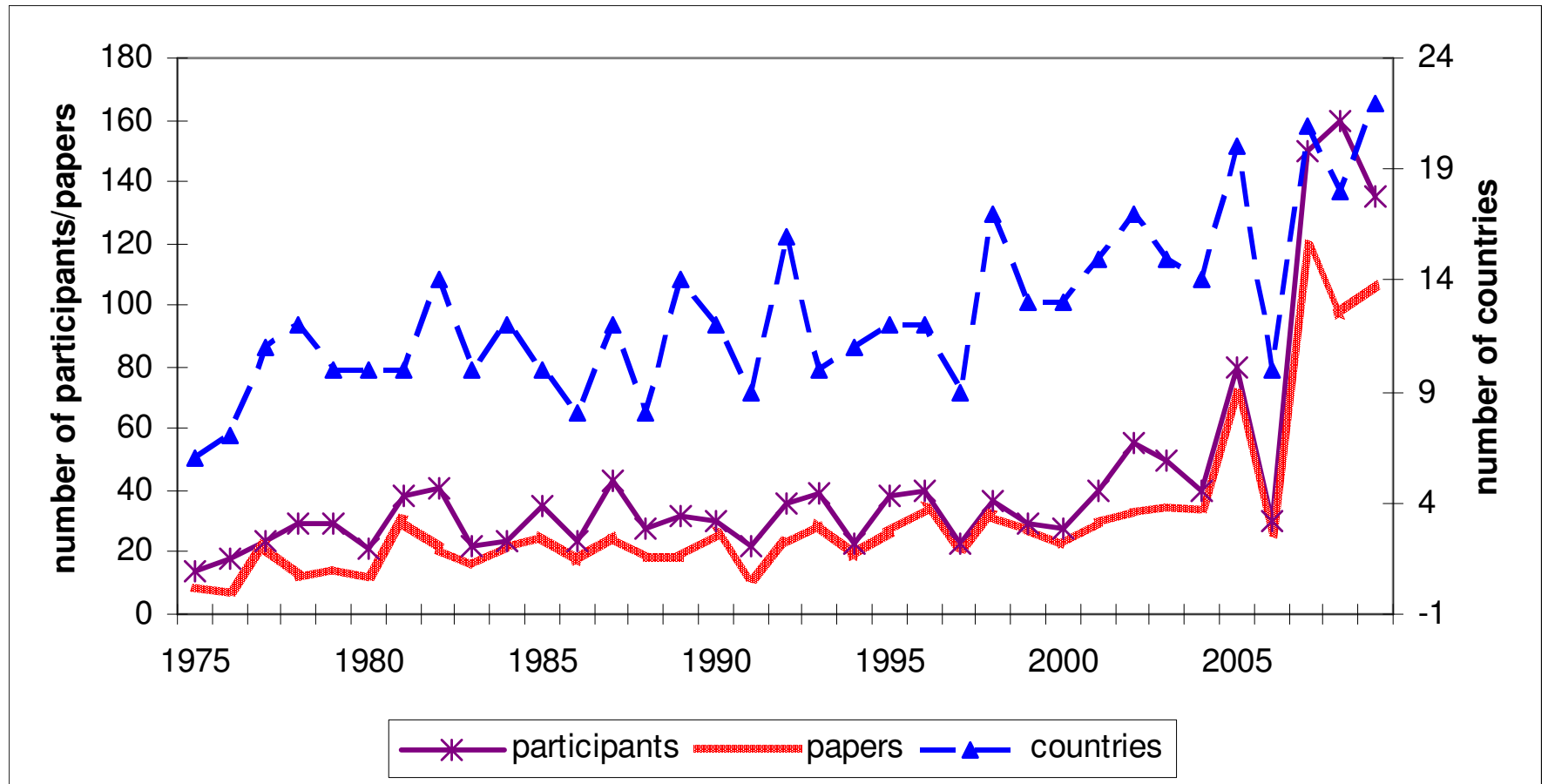
- More than 1000 papers presented
- Limited information
 - Oral presentations, not always in proceedings
 - No proceedings in the beginning years
- Interpretation difficulties
 - Patient survey: performance evaluation or consumer requirements ?
 - New way of scheduling: resource allocation or developing plans ?
 - Benchmark: performance management or performance evaluation ?
 - Care pathways: always Patient & Provider?
- Interpretations checked by both authors



RESULTS

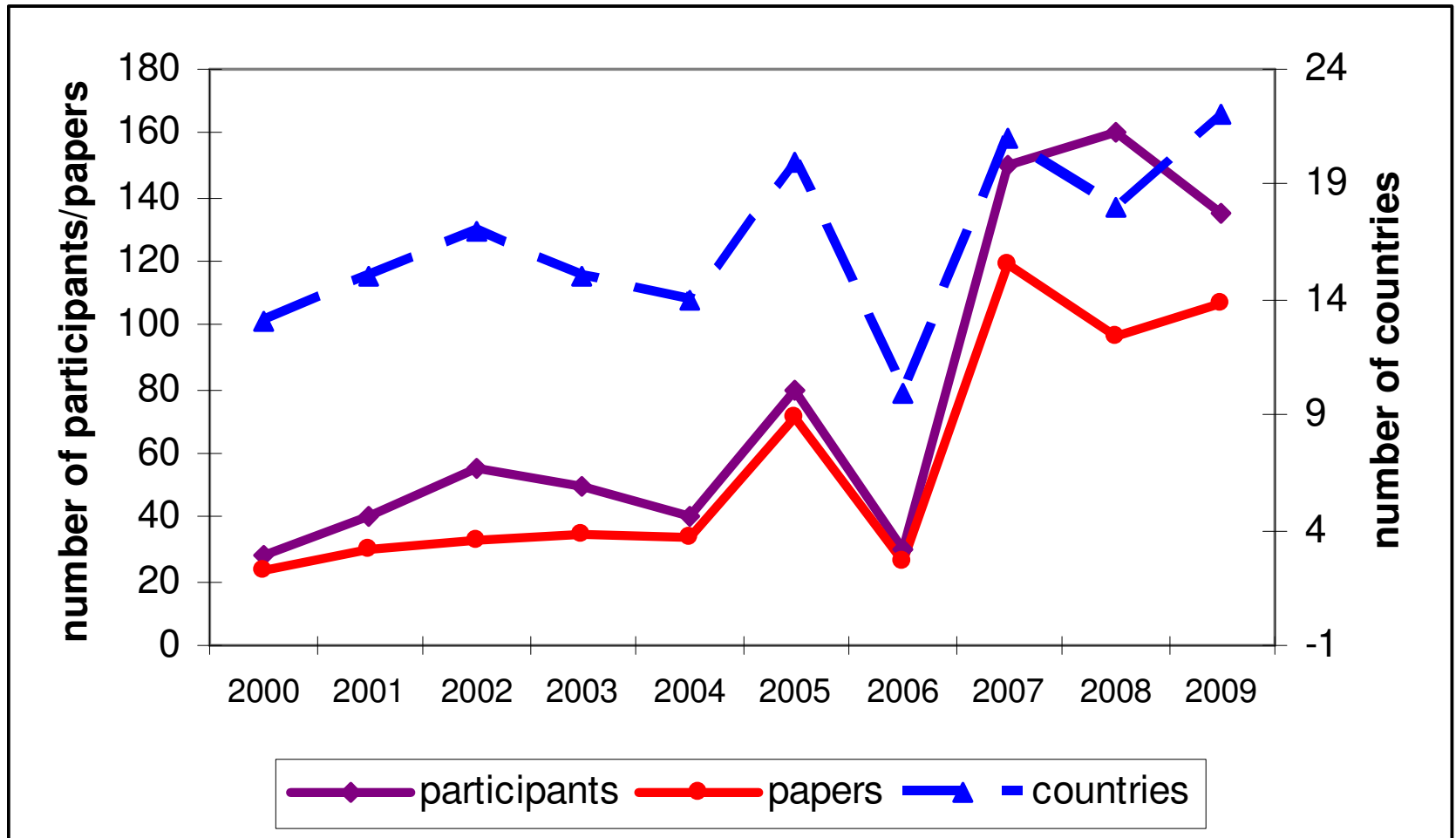
Development ORAHS Analysis of ORAHS papers

Number of participants/countries/papers 1975-2009





Number of participants/countries/papers 2000-2009



Summarizing

- Size of meetings: from 25-40 to 80-150 participants
- Countries: from 10-14 to 17-22 countries
- Papers: from 15-25 to 70-100 papers

- Explanations:
 - Popularity health OR
 - Rapid increase in PhD student numbers

- Pressure on format meetings ORAHS
- Challenge: how to handle the growth of ORAHS while maintaining its charm



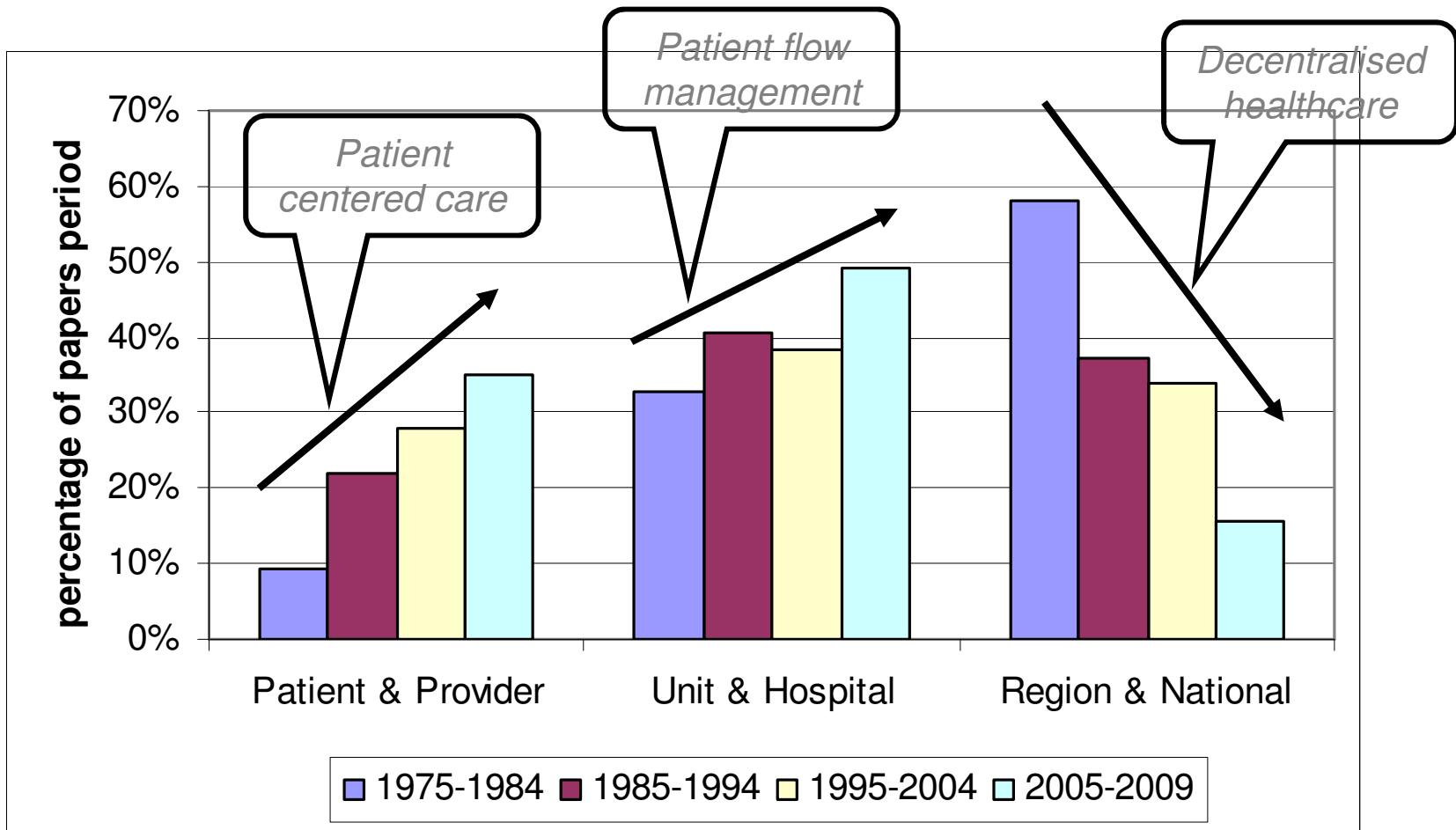
Number of papers per stage & level



Stage	Level	Patient & Provider	Unit & Hospital	Region & National	Total	Percentages
1. Identifying consumer requirements		9	1	6	16	2%
2. Developing a new service		13	0	4	17	2%
3. Forecasting the demand of services		16	5	23	44	5%
4. Securing resources for service delivery		0	3	18	21	2%
5. Allocating resources for service delivery		9	26	32	67	8%
6. Developing programs and plans for using resources		46	110	60	216	25%
7. Criteria for service delivery performance		6	3	1	10	1%
8. Managing the performance of delivery		63	178	90	331	38%
9. Evaluating the performance of delivery		63	33	53	149	17%
Total		225	359	287	871	
Percentages		26%	41%	33%		100%

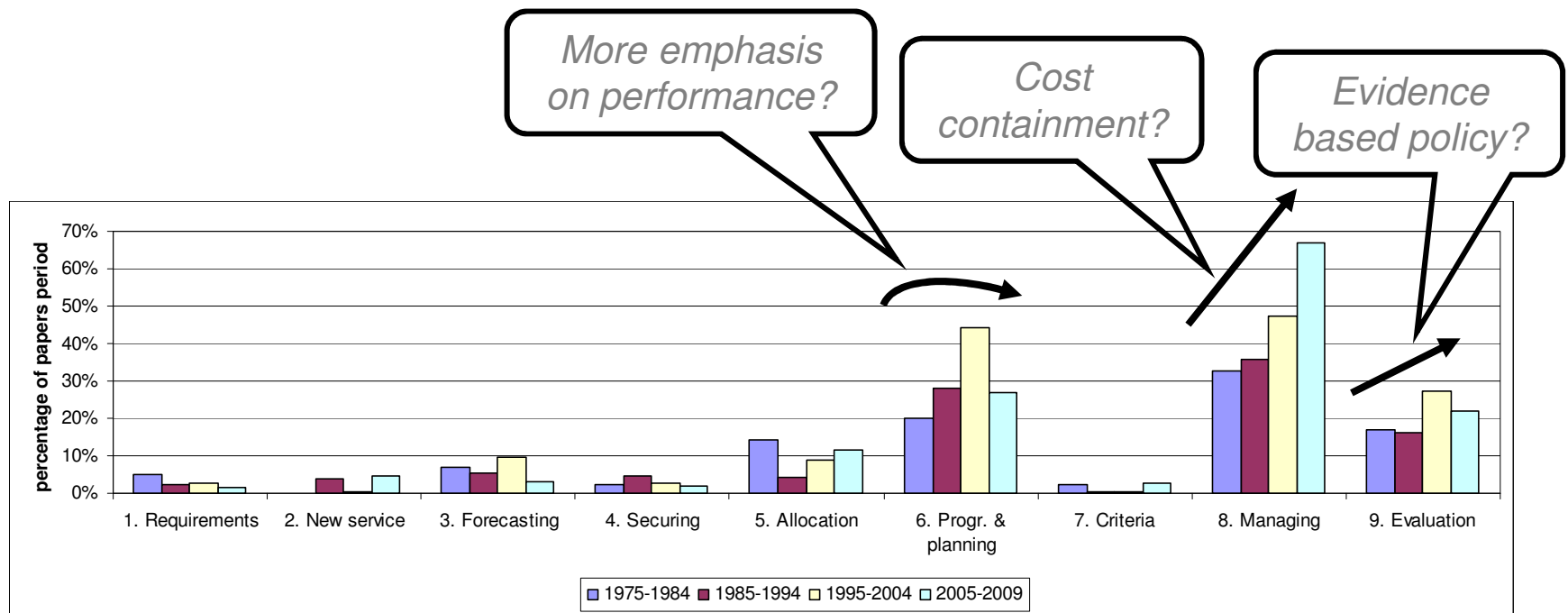


Percentage of papers per level, over time

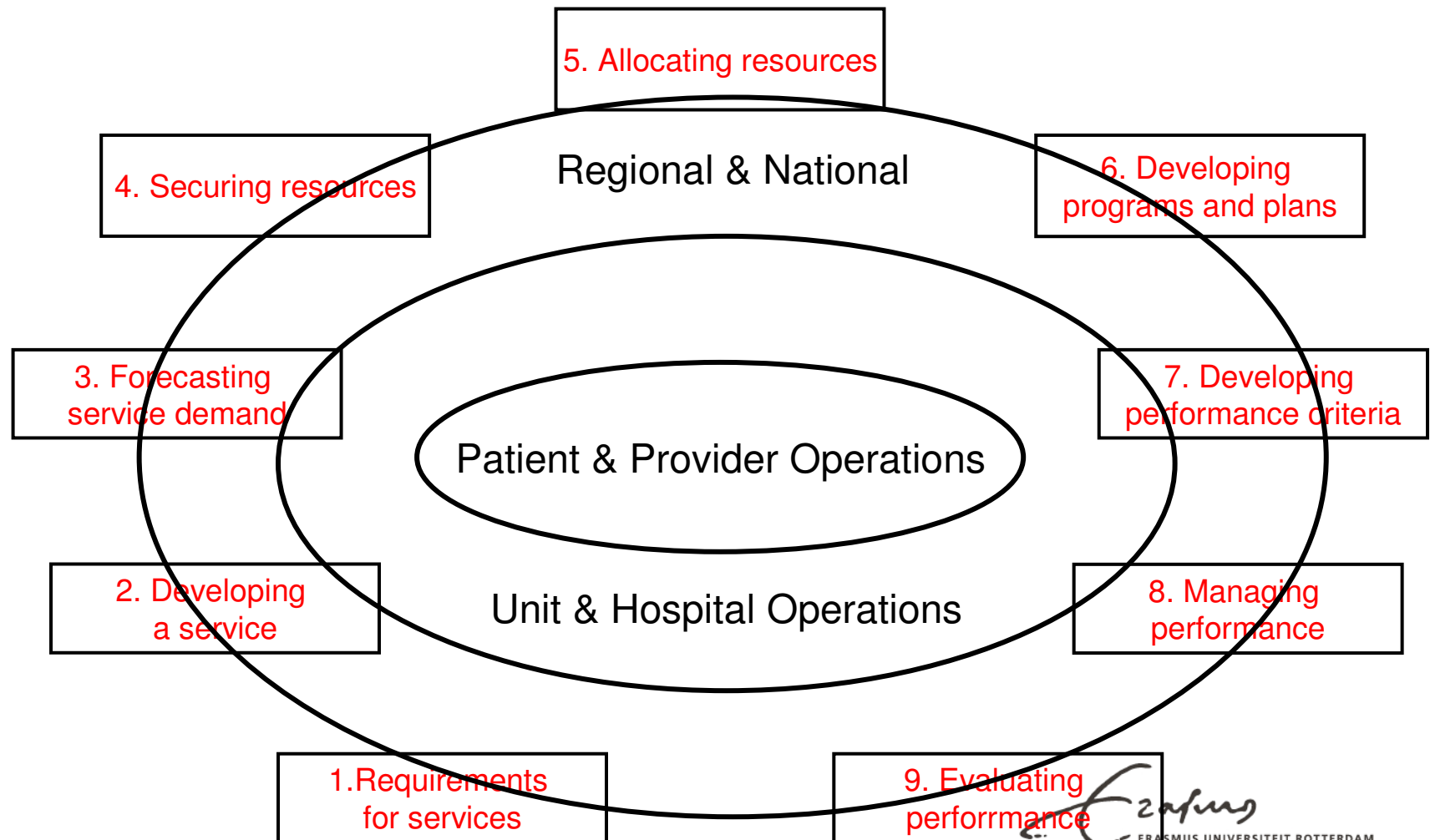




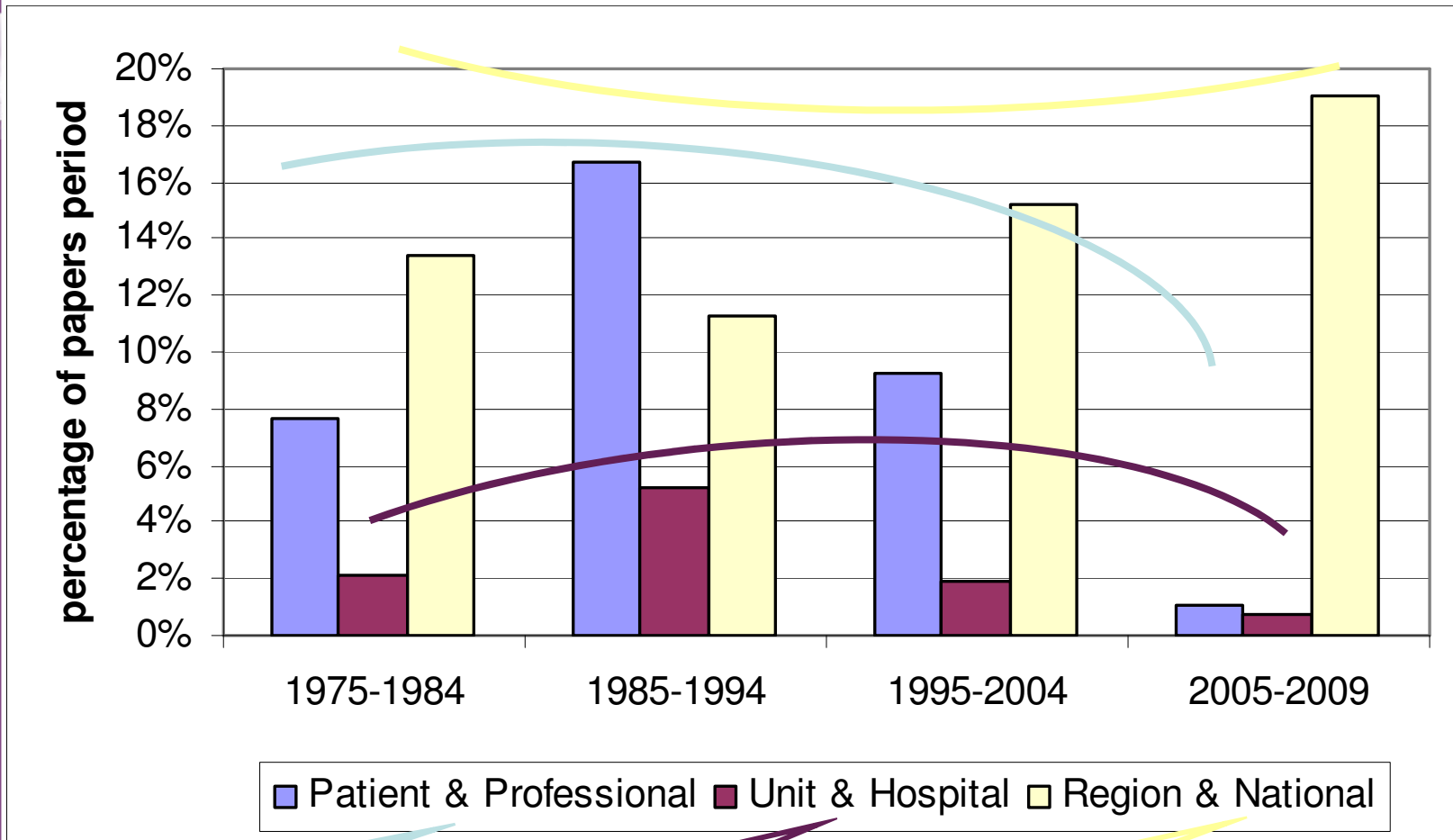
Proportion of papers per stage, over time



Results per service stage

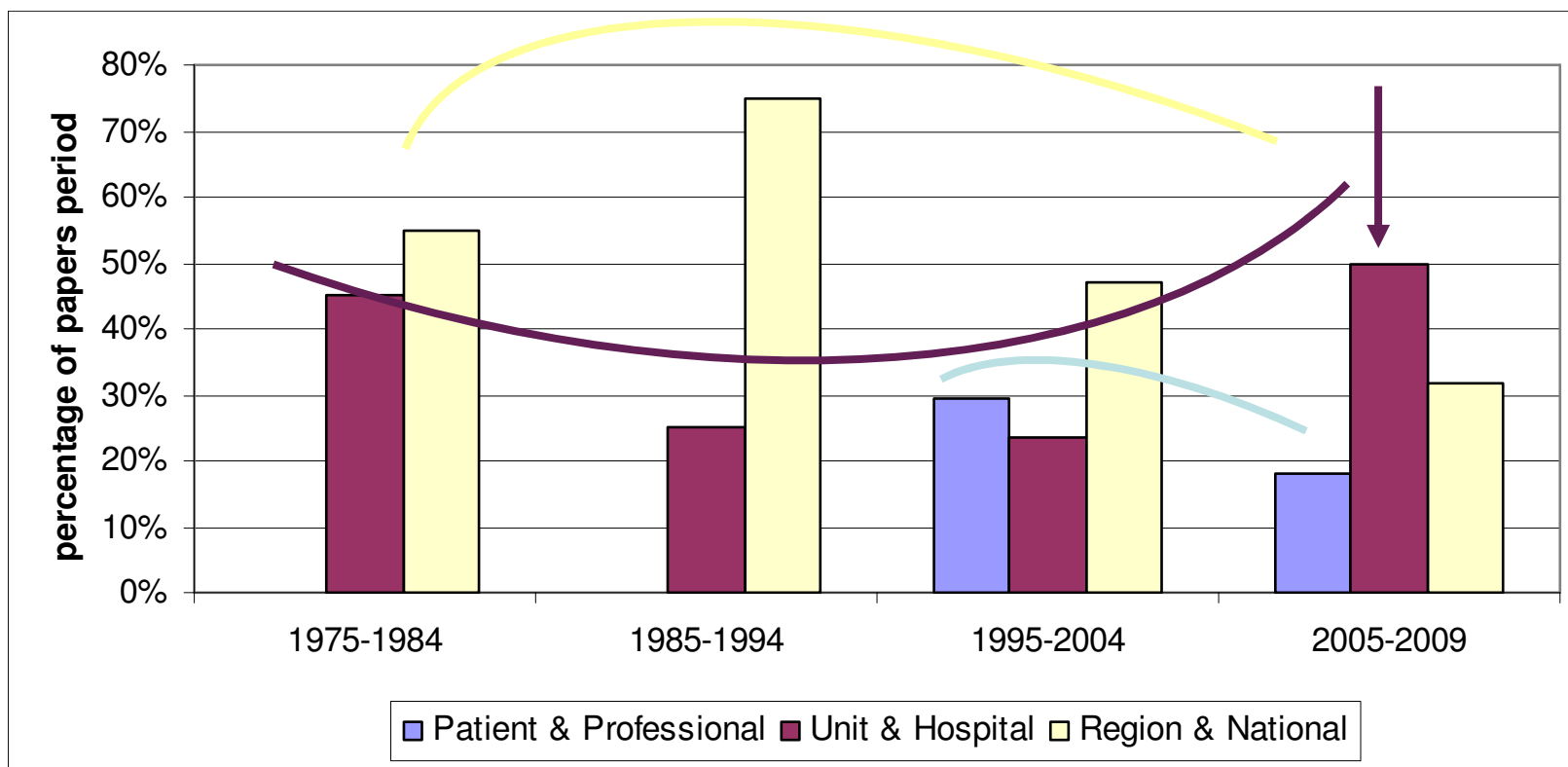


3 Forecasting demand / 4 Securing resources



Patient demand
Forecasting has become standard technique
Workload projections
Challenge: collaboration with epidemiologists
Financial models

5 Allocating resources



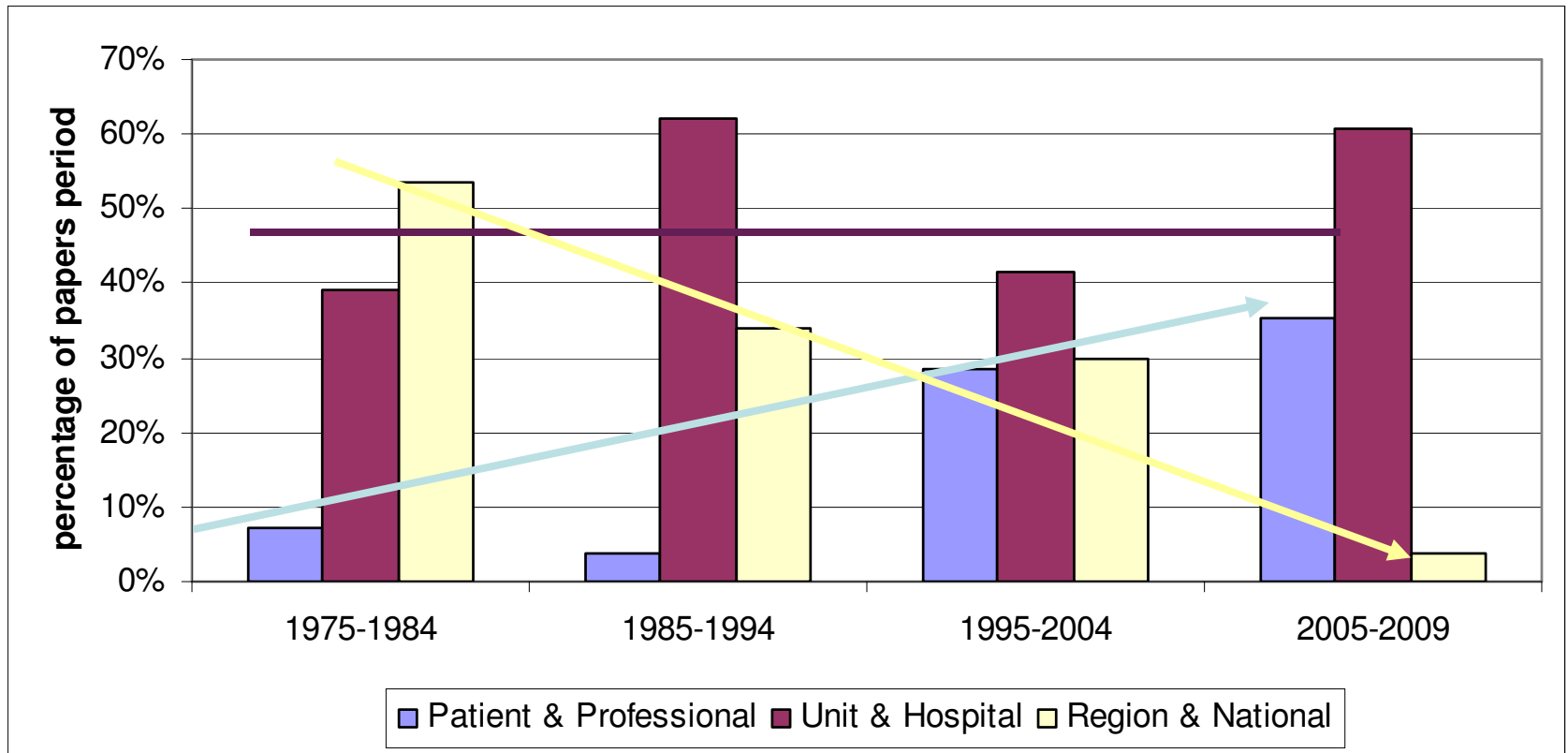
Provider planning

Nurse staffing

Ambulance planning



6 Plans and programmes



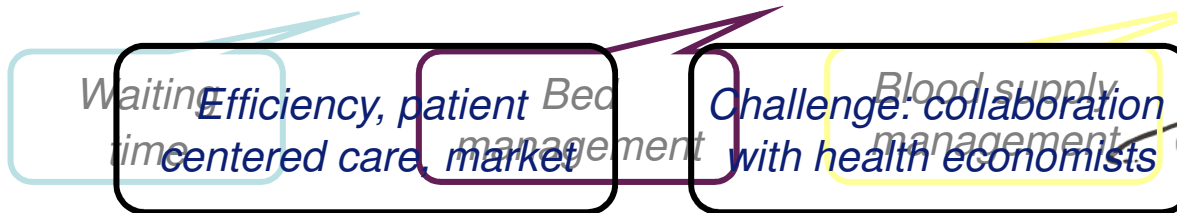
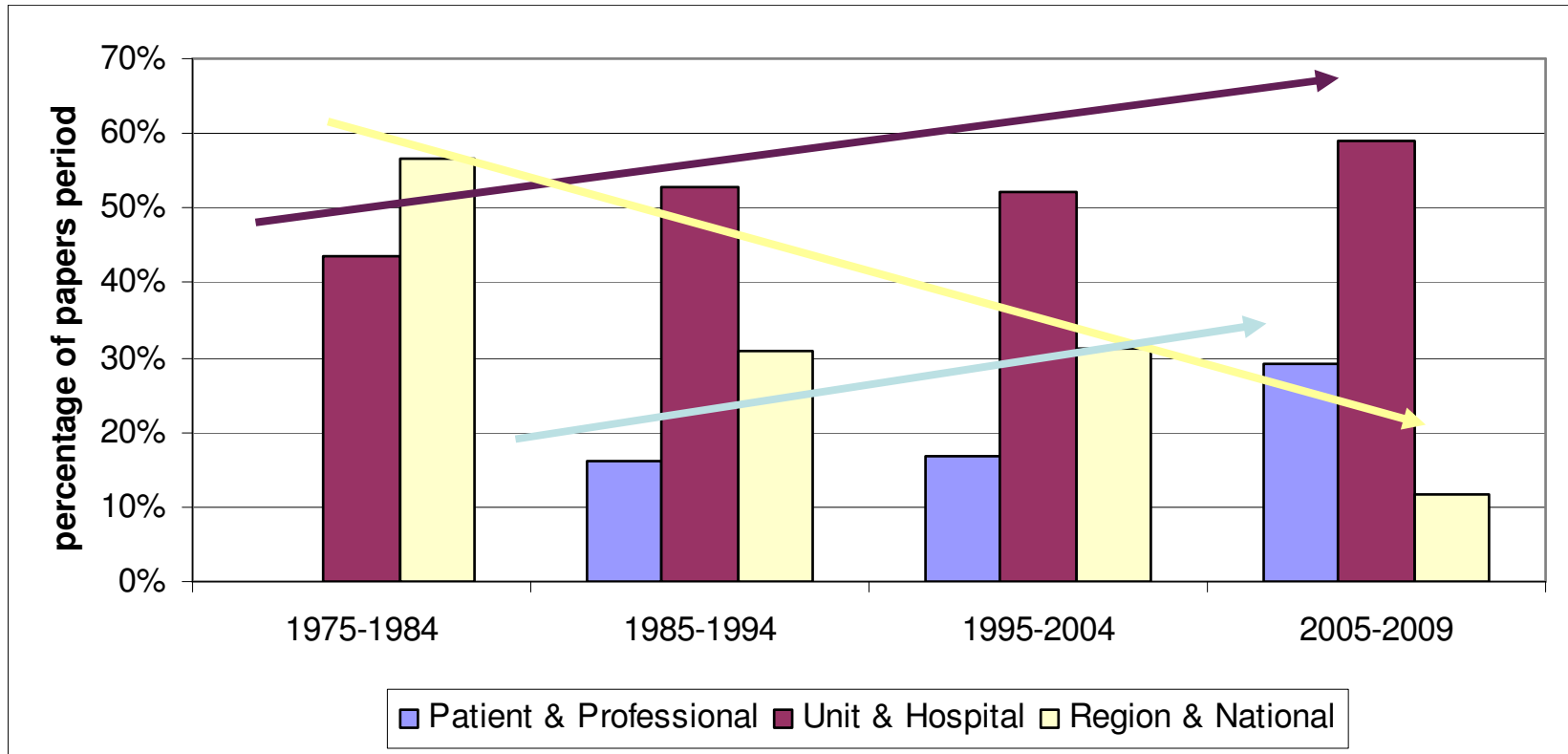
Screening program
 Pathways & patient flows

Admission planning

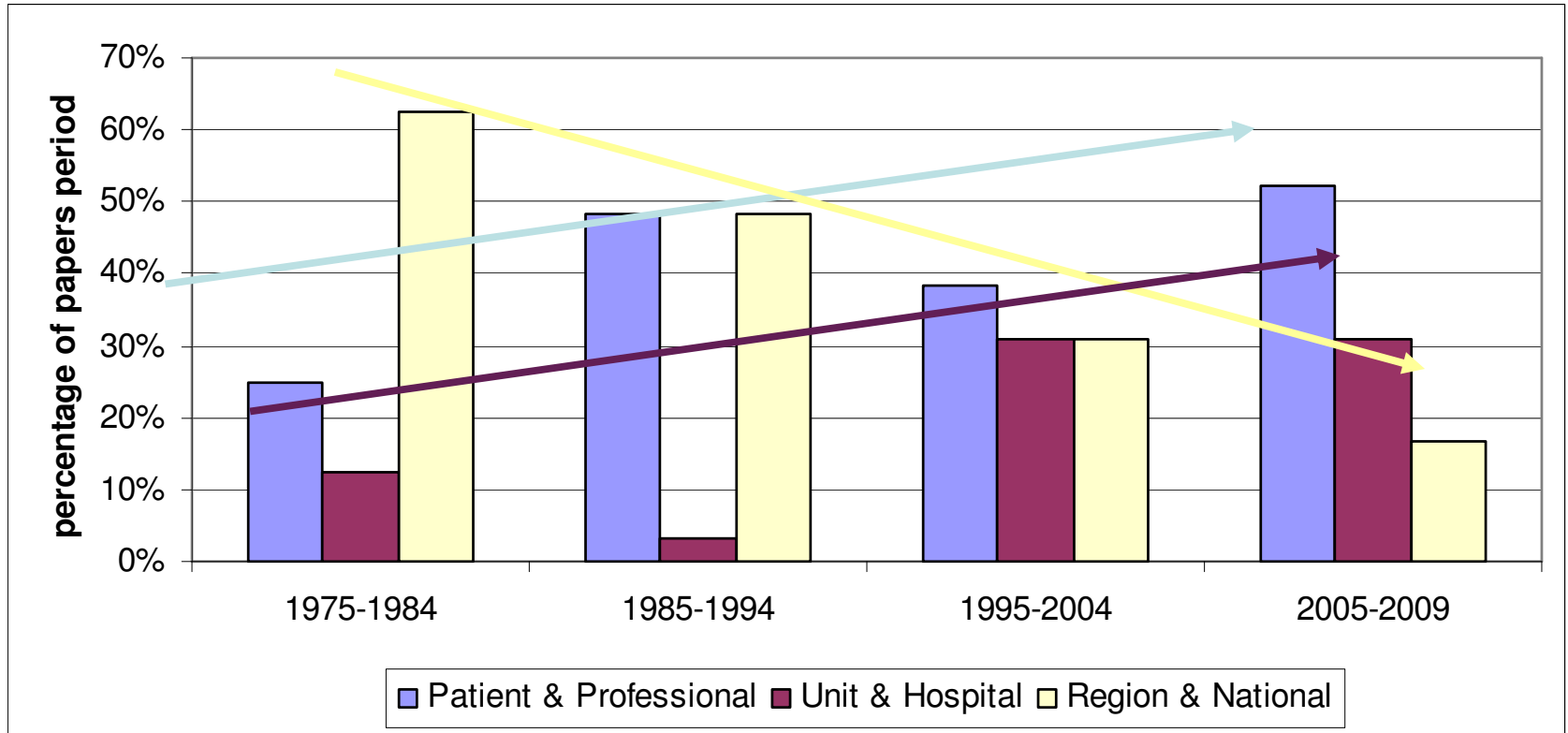
Challenge: collaboration with mngmt engineering
 Ambulance scheduling

Erasmus

8 Performance management



9 Performance evaluation



Patient satisfaction

Admission policies

Cost-effectiveness

Discussion

- Challenges in every stage:
 - 1/2 New service: participative soft modelling approaches (SSM, SOD)
 - 3/4 Forecasting: collaboration with epidemiologists
 - 5/6 Allocation & planning: whole systems perspective, patient flow modelling, collaboration with management engineering
 - 7/8 Performance management: rules of thumb, collaboration with health economists
 - 9 Performance evaluation: patient and provider focus
- Conclusions
 - Health OR increasingly popularity in numbers and in scope
 - Many challenges ahead
 - Focus on actual use requires close collaboration with practitioners



ORAHS 2010

- Genova/Italy: July 18-23 2010
- Organizer: Angela Testi (Testi@economia.unige.it)
- Theme: OR for patient-centered healthcare delivery
- Website: <http://orahs2010.diem.unige.it>