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Health Care Reform : The impact on practice, outcomes and costs of new roles for health professionals



MUNROS: presentation to Joint Action Health Workforce Planning and Forecasting Conference

Project co-ordinators

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Project Aims

- Detail the nature, scope and contribution of the new professional roles
- Evaluate their impact on clinical practice and outcomes and identify their scope to improve the integration of care
- Conduct economic evaluation to identify the cost effectiveness of the new professional roles
- Explore consequences of these for management of human resources and workforce planning

Four years from October 2012

Research conducted in range of different health care settings within EU and Associate Countries

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Health Care Reform : The impact on practice, outcomes and costs of new roles for health professionals





Coordinator: Scotland, University of Aberdeen



Germany, Berlin University of Technology



The Netherlands, Erasmus University Rotterdam



Italy, The Catholic University of Rome



Poland, University of Warsaw



Turkey, Economic Policy Research Foundation



England, University of Manchester



Czech Republic, Charles University Prague



Norway, University of Bergen

Structure of Research

Project Phase	Work packages included
1. Mapping health system integration, skill mix and competencies	WP 1 Understanding health systems
	WP 2 Mapping skill mix
2. Methodology and Study Design	WP 3 Case studies
	WP 4 Questionnaire design
3. Data Collection, Management and Analysis	WP 5 Impact on clinical practice and organisation of care
	WP 6 Outcomes: the Patient Experience
	WP 7 Outcomes: Process, Productivity and Clinical Effect
	WP 8 Changes in Costs and Benefits
4. Translation into Policy: Delivering Impact	WP 9 New Professional Roles and the Integration of Care
	WP 10 Management of Human Resources and Successful Workforce Planning
	WP 11 Scientific Structure, Policy Engagement, Impact and Dissemination
5. Scientific Coordination	WP 12 Scientific Co-ordination



Conceptual Framework: health service production function

- The level of output of the health service is a function of the level and combination of inputs to the health service.
- These inputs can be simply thought of as two types of labour and one type of capital, generating the following basic production function:

$$O_H = f(L_1, L_2, K) \dots \dots \dots (1)$$

- O_H , the output of the health service, is a function, f , of the input to the health service of two different labour types, L_1 and L_2 , and K the input of capital.
- $L_1 / L_1 + L_2$ provides a measure of the skill mix of the health workforce, expressed in terms of the share of L_1 in total employment, $L_1 + L_2$.
- If L_1 represents new professions and L_2 established professions $L_1 / L_1 + L_2$ provides a measure of the share of new professions in the health workforce.



The MUNROS Approach

The approach of the MUNROS project has been to refine the above framework by selecting defined clinical pathways, P , within a sample of similar hospitals, H , in each partner country, C .

Thus :

$$O_{\sum iPH1C} = f(L_{2PH1C}, \mathbf{K}) \dots \dots \dots (2)$$

$$O_{\sum iPH2C} = f(L_{1PH2C}, L_{2PH2C}, \mathbf{K}) \dots \dots \dots (3)$$

Where

- i = patients ($i = 1 \dots n$) in receipt of treatment along clinical pathway within defined time period within
- Clinical pathway P , where these are Breast Cancer, Type2 Diabetes, Heart Attack in
- Hospital, H , where 12 similar in size and function are identified in each country. Where Hospital $H2$ employs new professionals and $H1$ does not
- and C is the MUNROS consortium country, 9
- and \mathbf{K} is controlled for each PHC .

Then compare $O_{\sum iPH1C}$ and $O_{\sum iPH2C}$



Data Collection: questionnaires

- Questionnaires to all the **health professionals** engaged along each pathway and to the **managers** of those health professionals to identify the tasks each health care professional undertakes. This gives L , in (2) and (3).
- To identify $O_{\sum iPH1C}$ **and** $O_{\sum iPH2C}$ - identify **patients** currently treated within each pathway, within selected hospitals, and
- Extract (from hospital records) measures of: *clinical outcomes*, such as 30 days mortality; *patient safety outcomes*, such as hospital acquired infections; and *process outcomes*, such as length of stay, for these patients

Measuring Skill Mix

- Questionnaires collect data on L
 - Professions - identified by job title.
 - We list all the **tasks** to be undertaken along a pathway
 - Each profession identifies which tasks they undertake, how long they take, how frequently they do them
 - Tasks undertaken will be mapped to the skills and competencies required for these tasks
- To enable calculation of $L_1 / L_1 + L_2$ gather this information for all health professionals engaged along the pathway.
- Note: where the pathway begins or ends with primary care we gather the same information from the Primary Care practises associated with the pathways chosen.

Workforce Planning

- Above allows us to identify those tasks which are done by more than one type of professional: those tasks where substitution possible
- And to identify the different skill mixes, combinations of health professionals, that could be used to produce a given level of output along each pathway.
- When combined with cost data it allows us to identify:
 - the least cost skill mix that could produce a given level of output.

Or

- the highest level of output that can be produced for a given level of costs (and skill mix)
- Independently we try to estimate the population need for the procedure - combining an estimate of the prevalence of the disease resulting in this procedure with population size.
- The above enables us to identify the different skill mixes that might be used to meet population need for procedure

Findings from WP 1: understanding health systems

- Nine partner countries representative of different health care systems
- Universal health care coverage in all except Turkey
- Barriers to access in all countries: geography, social inequalities, financial, organisational
- Care pathways a common way to standardise care (except for Poland, Turkey, Czech Republic)
- Quality of care measures reported in all countries; no standard definition
- Performance management used in all countries; various indicators used (waiting time common to 8/9)
- Integrated care the ideal but barriers reported; no single model

Findings from WP2: mapping skill mix

Main drivers:

- Workforce policies: regulation of junior doctors' hours (England, Scotland, Netherlands)
- Payment systems: where payment for clinical treatment conditional on physician delivering treatment inhibits task reallocation (Germany)
- Technological advance: new roles for nurses in Italy as technology changes chronic disease management
- Professional authority: dilution of medical professionals authority facilitates task reallocation
- New approaches to care: secondary to primary care shift
- Professionalisation of non-medical Health Care Professionals: degree level entry changes expectations of professions

Findings from WP2: Mapping Skill Mix

- Three main groups of countries, those in which:
 - New professional roles have legal power and authority to establish new working domains (England, Netherlands, Scotland and now Germany): Nurse Practitioners and Advanced Practice Nurses – **New Professions**
 - New professional roles are focussed on specialised care within the medical domain (Czech Republic, Germany, Italy , Turkey): **Extended roles for established professions**
 - Marginal development of new roles (Norway, Poland)
- Literature review revealed new professions produced improvements in
 - Access
 - Patient knowledge and satisfaction,
 - Clinical outcomes.

And are employed across range of clinical settings: cancer, diabetes, and other chronic disease

Findings from WP3: case studies

Not generalisable but suggest that:

- The impact of new professional roles within the chosen pathways is small but significant.
- Small:
 - Few new care professionals in new roles in our chosen pathways.
 - Established professions set the rules.
 - Tasks they undertake vary within countries and between local teams.
- Significant:
 - New professions do work physicians and nurses used to do
 - Health care organisations are creating increasing number of these new roles.

Findings from WP3

- The contribution of new professional roles appears to be to:
 - Increase throughput without increasing costs
 - Increase transparency of procedures: likely greater recording of 'who does what' when new professions involved
 - Offer more patient centered care

Findings from WP3

- Some of the tasks new professional roles undertake will depend on the attitude and flexibility of established professionals
- Often of a single individual within a team – the team leader
- Necessary to establish they are knowledgeable and competent
- Comes from requirement to work closely together in teams
- Extension of roles also results from assuming additional tasks to “get the job done”

Looking Forward: WPs 5, 6 and 7

Effects on practice and organisation

- WP5: Understanding the impact on clinical practice and the organisation of care

Understanding Outcomes

- WP6: The patient experience
- WP7: Process and productivity indicators and clinical effect

Work Package 5 - Aims

To compare differences between countries/organisations in:

- New roles and changes in established profession roles
- Sustainability of the new professional roles
- Integration and fragmentation of care pathways
- Perceptions of:
 - barriers to and facilitators of skill mix
 - benefits/challenges of new arrangements
 - costs/benefits to different stakeholders
- Facilitators of and solutions for improved team working



WP 4 develops questionnaires for WP5, for Health Care Professionals and Managers

- Demography (age, qualification, location, role)
- Organisation of care along the care pathways
- Professions involved
- Tasks undertaken by each profession
- Time taken to complete tasks
- Frequency with which undertake tasks
- Perceptions of facilitators and barriers to changing skill mix

Work Package 6 - Aims

- To investigate the impact of the new professional roles on patient experience and satisfaction
- Patient satisfaction and perceptions of changes:
 - quality and continuity of care
 - follow-up and counselling
 - waiting times
 - health outcomes

WP 4: develops questionnaires for WP6 for Patients

- Demography, co-morbidities and EQ5D
- Position on the care pathway
- Tasks performed by different professionals
- Perceived degree of integration between primary and secondary care
- Experience and satisfaction with their care and the outcomes of care
- Costs of accessing services; travel time and other direct and indirect costs

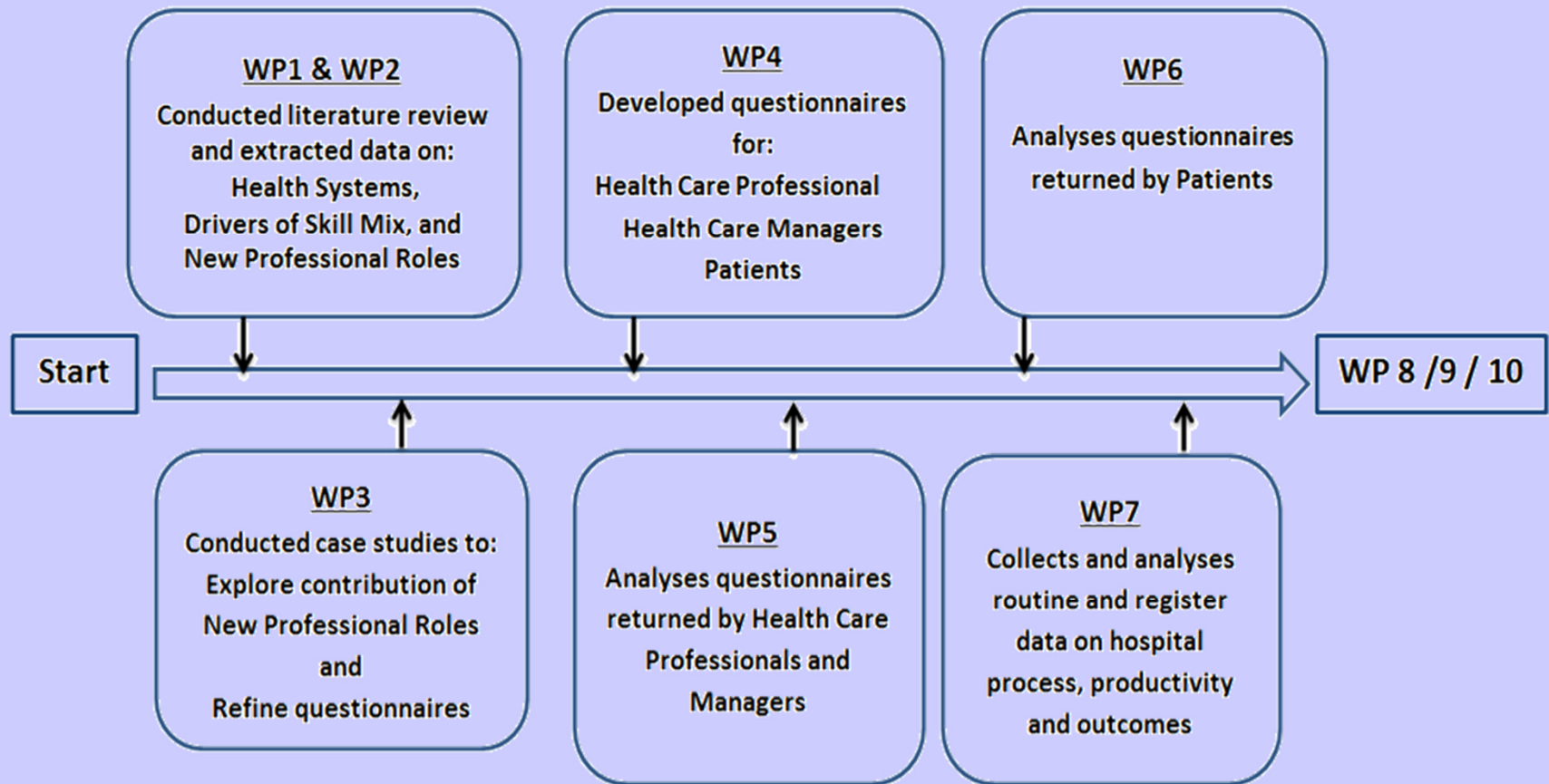
Outcome measures

- Patient satisfaction: Using a range of items from the patient questionnaire
- Patient Quality of Life: EQ-5D-5L index

WP7 – Aims and Objectives

- Collect routine and register data on hospital process, productivity & outcomes
- Extract data from individual patient records
- Assess the impact of the new professional roles on processes and clinical outcomes
 - i.e. how the new roles have changed
 - Clinical and process outcomes
 - Productivity in primary and secondary care settings

The foundations for WPs 8, 9 & 10



Overall aim of the project

- This project will undertake a **systematic evaluation of the impact** of changing skill mix within teams delivering health services **on practice, outcomes and costs** in a range of different health care settings within European Union and Associate Countries.
 - WP 8: Understanding changes in costs and benefits
 - WP 9: New professional roles and the integration of care
 - WP 10: Management of human resources and successful workforce planning



WP 8: Understanding changes in costs and benefits

Objectives

- To distinguish whether changing skill mix within teams delivering health services has or might result in cost containment.
- To undertake an economic evaluation to model the costs and effects associated with changing skill mix.
- To investigate the balance of cost and benefits and to identify incentives for changing skill mix.

WP 9: New professional roles and the integration of care

Objectives

- Integrate the findings of the previous work packages
- Describe the existing patterns of health care in the participating countries and how skill mix change might be employed to improve the integration of care within care paths
- Develop optimal models of integrated care in terms of improved patient outcomes and cost effectiveness of care
- Identify critical elements of these optimal models and solutions to barriers at organisational and care team level informed by examples of good practice, and the associated costs

WP 10 management of human resources and successful workforce planning

- Constructing detailed task lists within care pathways.
- Identifying which professionals do what along each pathway
- Analysing differences in skill mix and associated differences in health outputs
- Exploring the interaction between workforce skill mix and the quality and cost of care for patients.
- Identify a skill mix benchmarks against which service providers can evaluate the efficiency of existing skill mix

Intended Project Outcomes

To produce a systematic comparison of the differences in:

- The contribution (nature and scope) of the new professional roles
- Changes in the roles of established professions, including those of physicians.
- Barriers to and incentives for different types of skill mix.
- Costs and benefits of different skill mixes.
- Specifically any differences in outcomes for patients due to differences in skill mix.
- Identify a skill mix benchmarks against which service providers can evaluate the efficiency of existing skill mix
- AND scope of new roles to improve the integration of the care pathways.



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