

The Evolving Role of the Nurse Specialist in Chronic Care – Evaluation on its Effectiveness and Quality of Care

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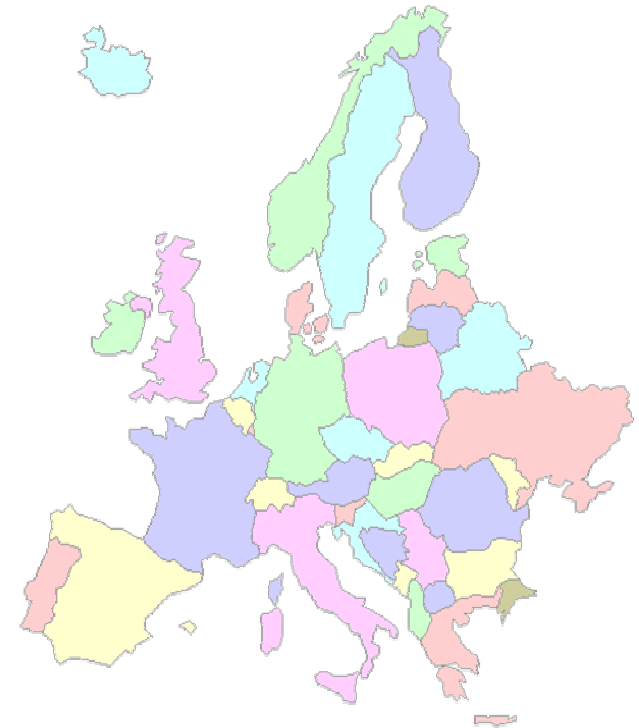
Faculty of Health, Medicine and Life Sciences



Universiteit Maastricht

The Netherlands

- 3 parts: Western Europe, Antilles, Aruba
- constitutional monarchy with a parliamentary system
- 16,315,970 inhabitants on 41,526 km² (477 people per km²)
- 14% of 65 yrs or older
- 11th on 2004 list GNI per capita (Norway 1st, US 3rd, Canada 15th)
- 12% of GNI on health care costs (in 2020 33%)
- from mixed system to one standard health insurance in 2006 (competition on services)



About the Netherlands: did you know that...?



- "The Netherlands" and "Holland" are used to describe the same country
- 25% of the Netherlands is below sea level
- the Netherlands still has about 1,000 traditional working windmills
- every Dutch person has a bicycle and there are twice as many bikes as cars in the Netherlands
- after Scandinavians, the Dutch are the world's biggest coffee drinkers

Agenda

- Chronic care management: why care?
- Skill mix and the evolving role of the Nurse Specialist
- Findings from evaluations
- Implications and recommendations

Chronic care management: why care?

- Problem assessment identifies a varied set of shortcomings e.g.:
 - providers inadequately comply with guidelines
 - separately working providers with limited communication
 - late detection of diseases
 - patients receive brief and infrequent visits without enough time to address the *illness*
 - patients inadequately adhere to medication and self-management activities
 - high and increasing use of limited health care resources

Chronic care management: why care?

- Problem assessment identifies a varied set of shortcomings e.g.:
 - depending on the financing of the health care system a decrease in the capacity of financial resources
 - increasing number of people at risk and patients
 - at least a slower increase or even a decrease in the capacity of (some type of) health care providers
 - technological innovations
 - changes in the legislative environment

Chronic care management: why care?

Østbrye T et al. *Ann Fam Med* 2005;3:209-14.

Table. Summary of primary care time requirements for 10 chronic diseases, assuming the disease is stable and in good control

Disease	Number of cases	Visits per year	Minutes per visit	Minutes per disease per year	Hours per year
Hyperlipidemia	511	2	10	20	170
Hypertension	472	2	10	20	157
Depression	118	4	10	40	92
Asthma	183	2	10	20	61
Diabetes	145	2	10	20	48
Arthritis	381	2	10	20	127
Anxiety	279	2	10	20	107
Osteoporosis	140	1	10	10	23
COPD	131	1	10	10	22
CAD	120	1	10	10	20
Total hrs per year					828
Total hrs per day					3,5

Chronic care management: why care?

Østbrye T et al. *Ann Fam Med* 2005;3:209-14.

Table. Effects of disease control status on time requirements for 5 chronic diseases

Disease	Total cases	No. (%) of cases		Number of Visits		Minutes per visit	Hours per year
		Uncontr.	Contr.	Uncontr.	Contr.		
Hyperlipidemia	511	417 (81.6)	94 (18.4)	8	2	10	587
Hypertension	472	312 (66.0)	160 (34.0)	12	2	10	704
Depression	118	58 (49.0)	60 (51.0)	12	4	10	156
Asthma	183	62 (33.6)	121 (66.3)	4	2	10	82
Diabetes	145	91 (63.0)	54 (37.0)	4	2	10	79
Total hrs per year							1,581
Total hrs per day							6,7

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Skill mix and the Evolving Role of the NS

- Changing skill mix is one option to respond
- Skill mix as part of redesigning care
- Skill mix: the combination of activities, skills or competencies to provide patient care
- No common starting point for examining skill mix in different countries and health systems, because of influence of resource availability, regulatory environments, culture, custom and practice

Skill mix and the Evolving Role of the NS

- Shift from one-to-one relationship to 'total patient care' and interdisciplinary teamwork (90s)
- Team: patient, physicians and non-physicians
- Care team challenges traditional interactions: supplementary, complementary or substitution of tasks

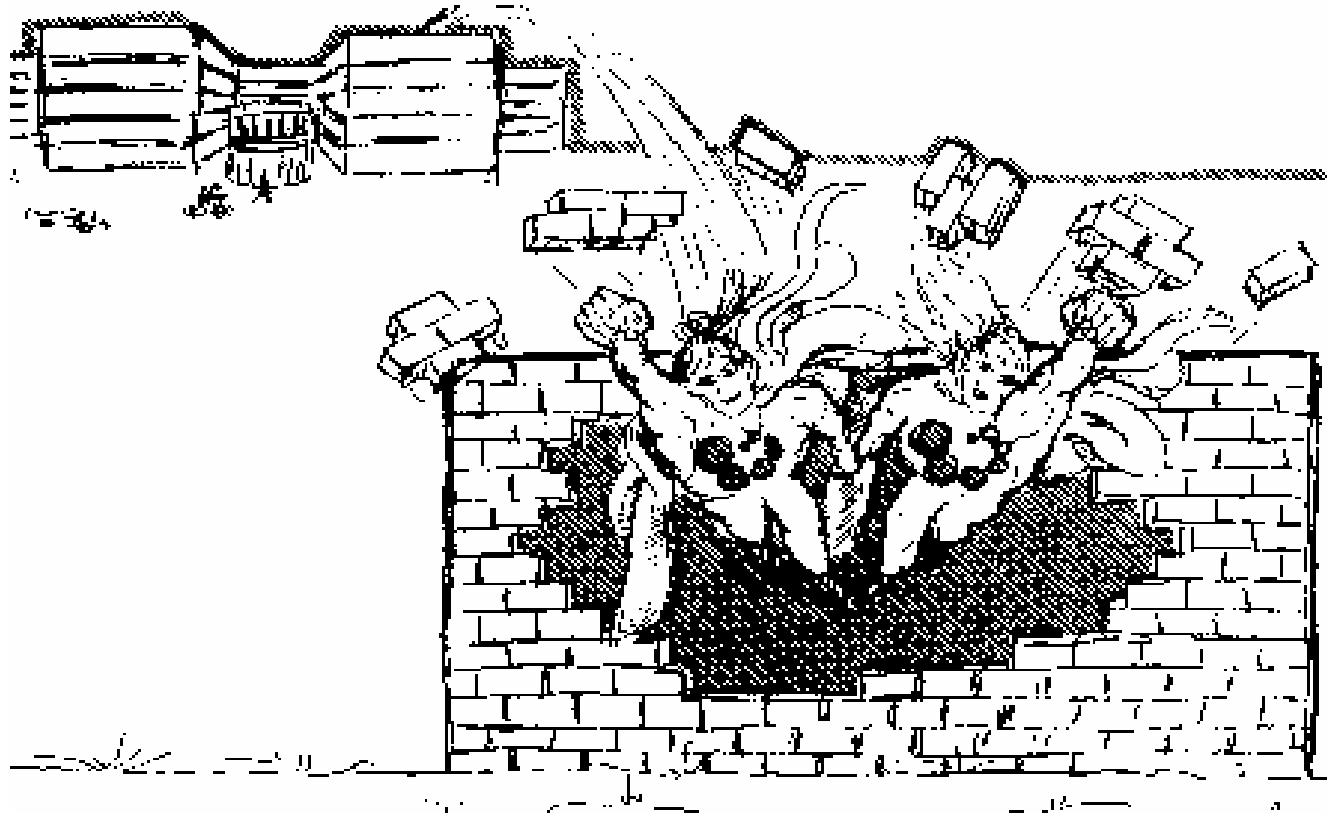
Skill mix and the Evolving Role of the NS

- Nursing on the boundaries (Starfield 1992):
 - supplementary: tasks could be done, albeit inefficiently, by physicians
 - complementary: tasks for which physicians often have neither the skills nor the time to do well
 - substitute: tasks that are traditionally performed by physicians
 - or mixture
- Nurse specialist (NS) typically takes on an advanced role, build on specialist practice, with substantial clinical autonomy

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Findings from evaluations



Findings from evaluations

- To improve quality of care by delivering care interactively and interdependently with inter-professional substitution
 - patients with stable DM type 2 or stable COPD
 - different settings
 - 3 quarterly consultations by CNS and 1 annual consultation by physician
 - evidence based protocol
 - tasks of CNS: direct patient care, organization & coordination, consultation, advancement of expertise

(Vrijhoef et al. 2001, 2002)

Findings from evaluations

- Three different settings:
 - a. transfer from general practitioner to nurse specialist (primary care)
 - b. transfer from medical specialist to nurse specialist and from outpatient care to primary care
 - c. transfer from medical specialist to nurse specialist (outpatient care)
- Three different designs:
 - a. pretest-posttest design
 - b. non-equivalent control group design
 - c. randomized controlled trial

(Vrijhoef et al. 2001, 2002)

Findings from evaluations

- The same aspects of quality:
 - quality of life (*VAS, COOP/WONCA, SGRQ*)
 - knowledge about disease (*disease specific, Dutch*)
 - self-care behavior (*disease specific, Dutch*)
 - satisfaction with care (*marketing, CEP*)
 - clinical parameters (*HbA1c, lipids, BP, BMI, Fev1/FVC*)
 - consultations with main care providers (*CRF*)
- 12 months follow-up with measurements at T0, T6 and T12

(Vrijhoef et al. 2001, 2002)

Findings from evaluations

(Vrijhoef et al. 2001, 2002)

Disease	clinical outcomes	QoL	self-care/ knowledge	patient satisf.	total medical consumption
DM2	*	=	= / =	=	=
DM2	* [=]	= [=]	* / * [= / =]	= [=]	* [=]
COPD	*	=	* / *	*	*
COPD	=	=	*/*	*	=

*statistically significant improvement; = equivalent outcome; [] additional comparisons

Findings from evaluations

- CEA-analysis of skill mix model with substitution in region Maastricht
- Population based approach: triage
- One group pre-posttest, 18 month follow-up, Markov modeling for period of 5 yrs
- Improvements in clinical parameters, QoL, self-care behavior
- Intervention is dominant in 74% of simulations with savings of €117 ppy and 5% increase in QoL

(Steuten, Vrijhoef et al. 2005, 2006)

Findings from evaluations

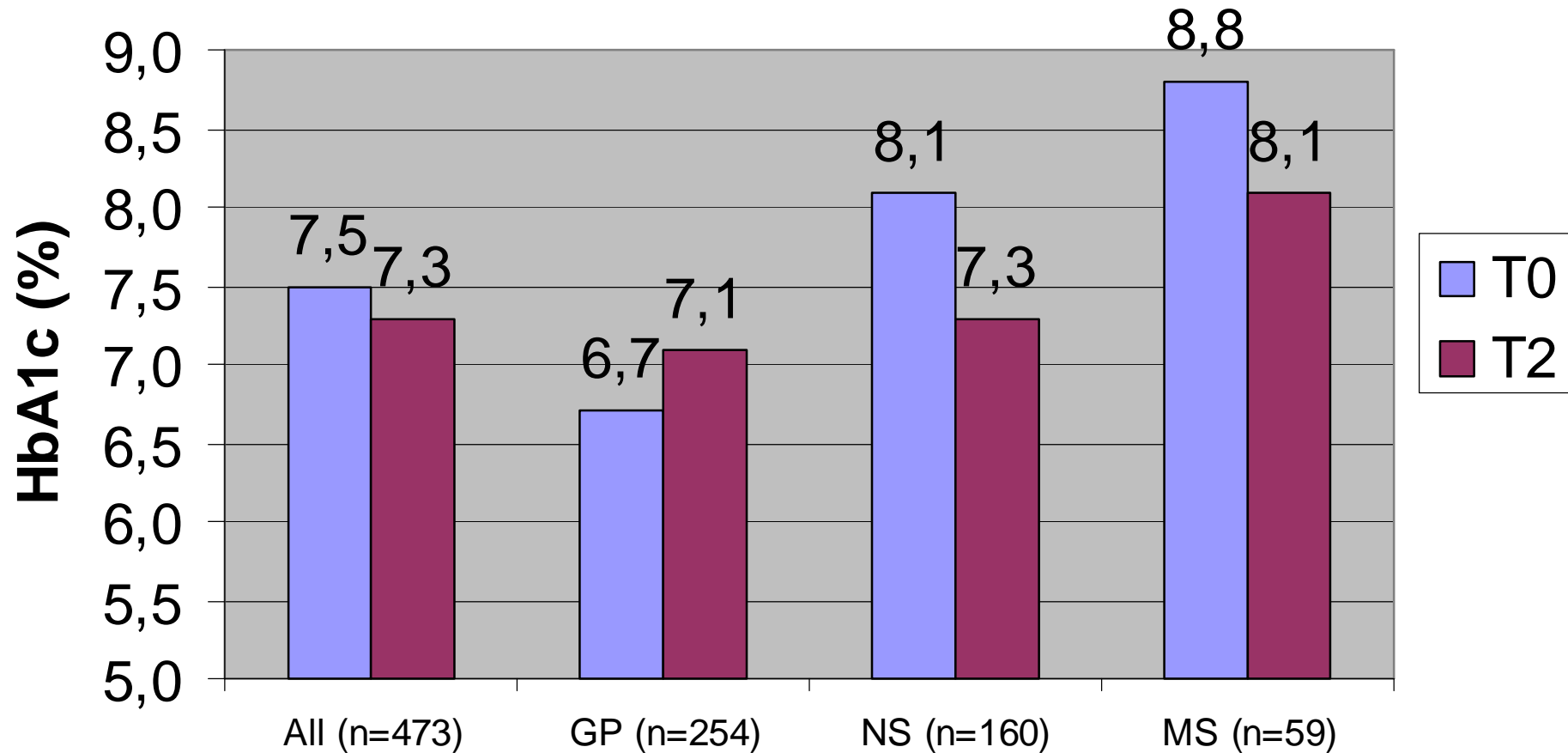
Mean HbA1c (%) Steuten, Vrijhoef et al. 2006

p=.000

p=.000

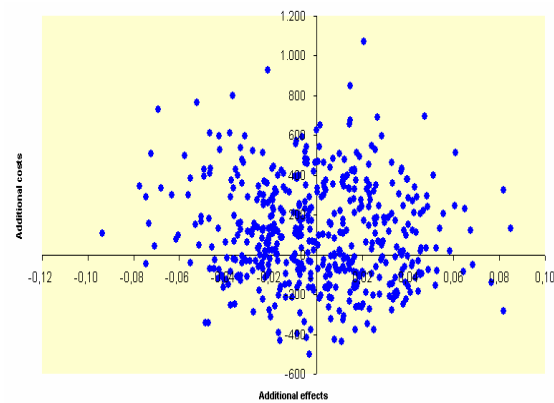
p=.000

p=.000

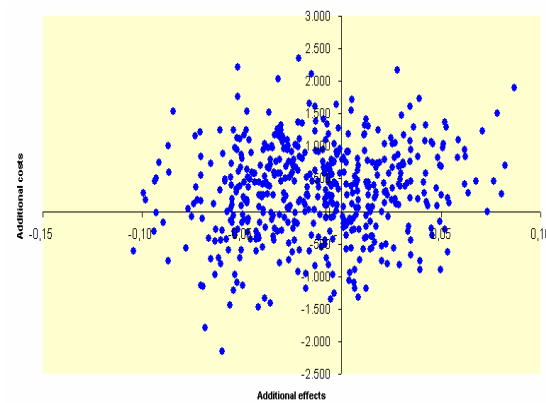


Findings from evaluations

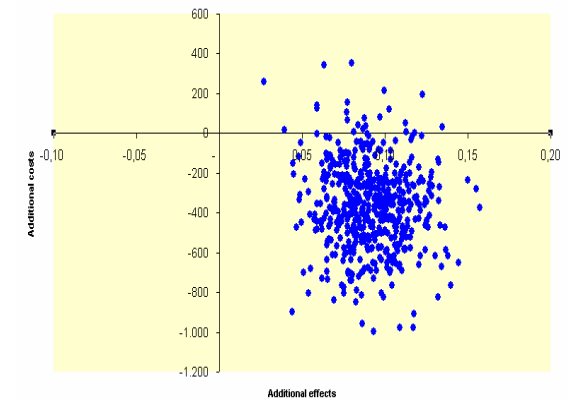
GP



MS



CNS



(Steuten, Vrijhoef et al. 2005, 2006)

Findings from evaluations

- There is no single skill mix model or team to be applied everywhere – *not even in the NL*
- With the nurse specialist taking on roles and tasks beyond those traditionally performed by physicians, a **justified alternative** for traditional care of patients with diabetes type 2 or COPD was developed

(Vrijhoef et al. 2001, 2002 & Steuten, Vrijhoef et al. 2005, 2006)

Findings from evaluations

- Evaluations of skill mix in chronic care:
 - nurses can do some (25-70%) of what doctors do, usually to the greater satisfaction of patients and at least equal outcomes (e.g. Richardson, Renders, Shum, Steuten, Venning, Vrijhoef)
 - the objective of skill mix is often not clearly described: substitute, enhance, increase output, or mixture
 - due to complexity of intervention it is difficult to assess to what extent adequate skill mix optimizes health gain in a single trial

Findings from evaluations

- Evaluations of skill mix in chronic care:
 - “there is clearly a need ... to measure **outcomes** for patients... and their satisfaction ratings” (Richards et al. 2000)
 - “There are **significant limitations** to the current evidence on skill mix in the health workforce.” (Buchan et al. 2002)
 - “However, there remains little evidence of cost-effectiveness at a time when skill mix changes are being introduced..” (Kernick et al. 2002)
 - “**More**, methodologically **suitable** evaluations with the use of only valid measures are needed (Vrijhoef et al. 2000; Taylor et al. 2005)

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Implications and recommendations

- Redesign of care includes the concept of skill mix
- Successful experiences exist, despite all barriers (culture, finance, legislation, education, evidence base)
- There is no single skill mix model to be applied everywhere
- Open debate is required to rationally assess which competencies and tasks fit best with the specific needs of an increasing number of chronic patients

Implications and recommendations

- Additional research of good quality is required to refine the methodology of assessment to assess its (cost)effectiveness
 - Research question and intervention: clear objective and description of skill mix
 - Design: comparison of team/ skill mix with usual care in terms of competencies in stead of comparing professions
 - Parameters and measures: definition of effectiveness and costs
 - Population: criteria for in-/exclusion, power
 - Period of data gathering: months or years
 - Data-analysis: unit of analysis, considering modelling



THANK YOU

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