



Universitätsklinikum
Hamburg-Eppendorf

Multimorbidity & Guidelines

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FONDAZIONE IRCCS CA' GRANDA
OSPEDALE MAGGIORE POGGIENIGO
Sistema Sanitario Regione Lombardia

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**Aging, multimorbidity
and polypharmacy:**
which strategies for
the Third Millennium

25-26 September, 2013 - Milan, Italy
IRCCS Ca' Granda Foundation Polyclinic Hospital,
Mangiagalli Clinic, Via della Commenda 12



The problem

- Clinical case: 79 year old women
- Hypertension, osteoporosis, Diabetes and chronic obstructive pulmonary diseases
- Guideline search

Boyd C, et al.

Clinical Practice Guidelines and Quality of
Care for Older Patients with Multiple
Comorbid Diseases

JAMA 2005; 294: 716-724



Treatment plan of the 79 woman

- 12 different drugs per day
- 24 general measures and lifestyle rules
- 28 additional rules regarding lifestyle and check-ups during a year
- Costs of medication: 13 \$/day = 4.877 \$/year

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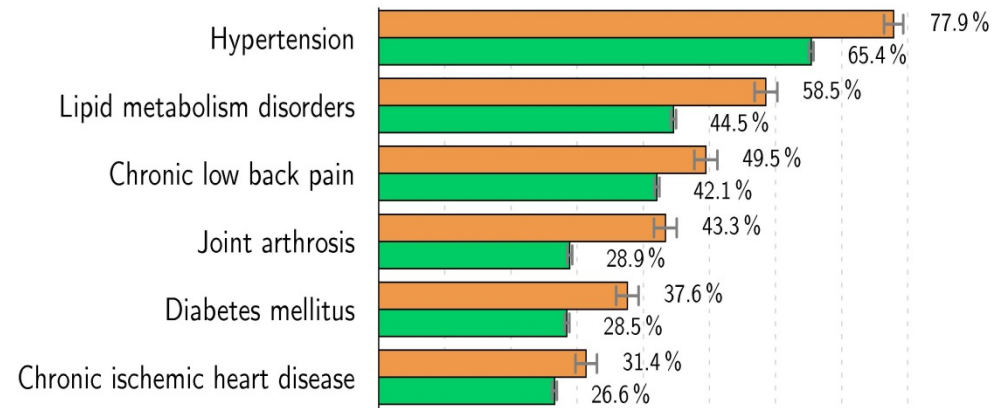
Epidemiological strategies for adapting clinical practice guidelines to the needs of multimorbid patients

Eva Blozik^{1*}, Hendrik van den Bussche¹, Felix Gurtner^{1,2}, Ingmar Schäfer¹ and Martin Scherer¹

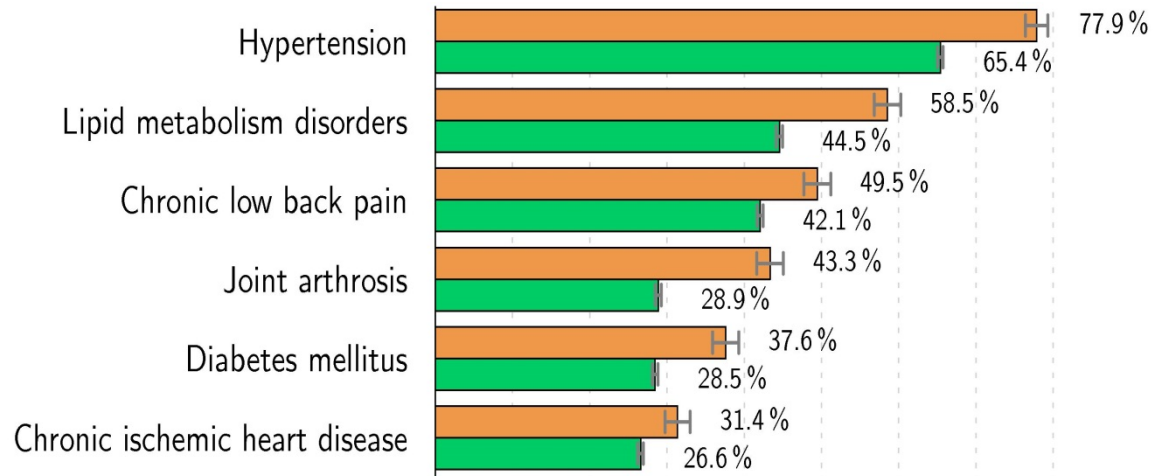
- Attempt to response to Cynthia Boyd
- Provide a checklist for guideline developers



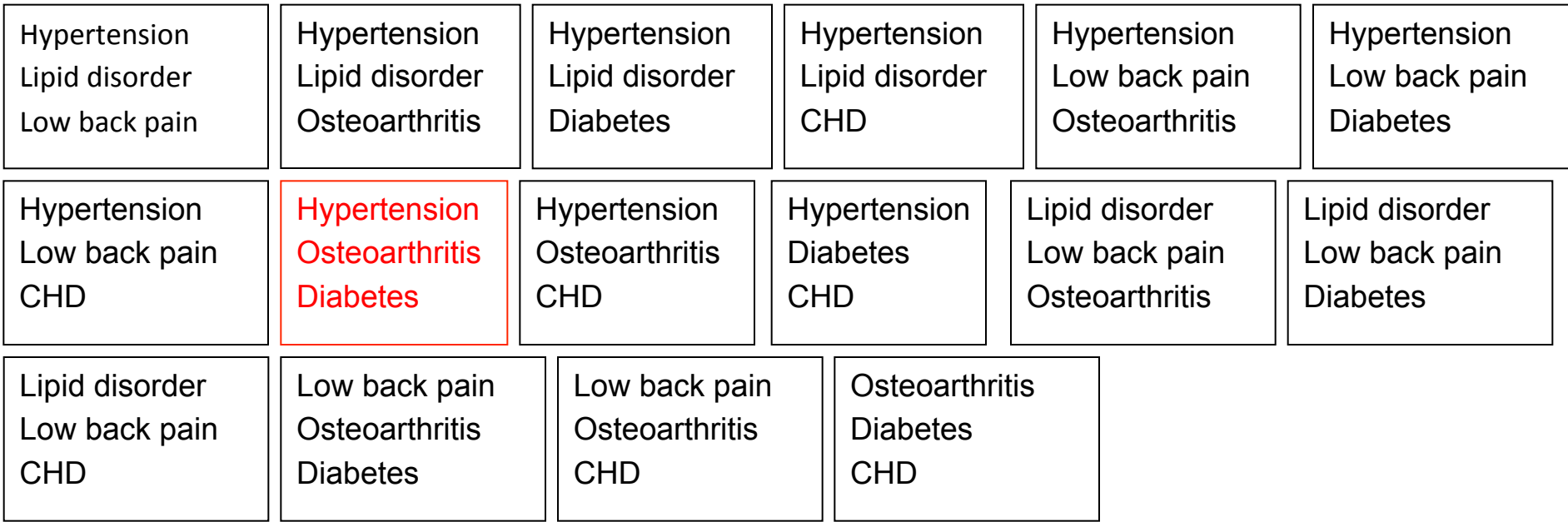
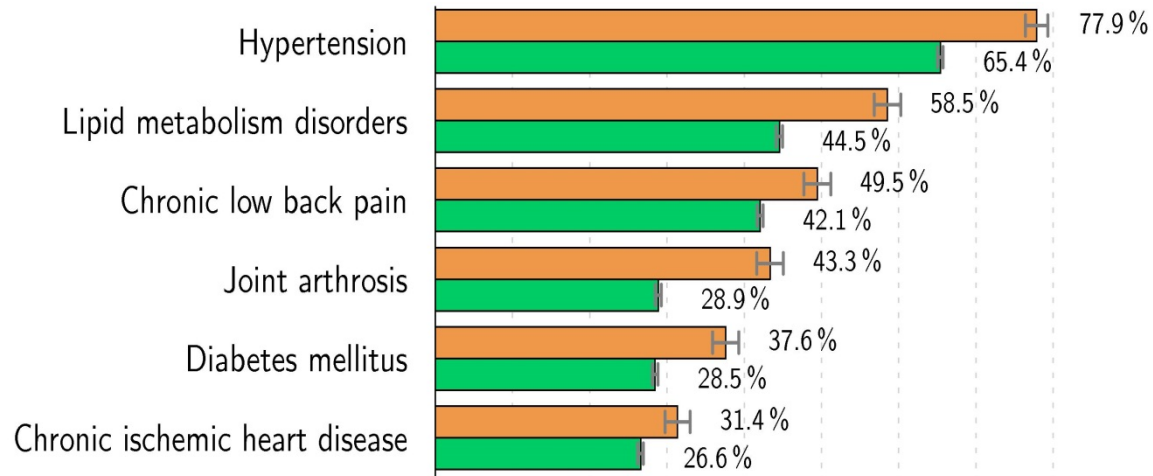
Triads



Triads of the six most prevalent individual chronic conditions (hypertension, hyperlipidemia, chronic low back pain, diabetes mellitus, osteoarthritis and chronic ischemic heart disease) cover 42% of the elderly multimorbid population.

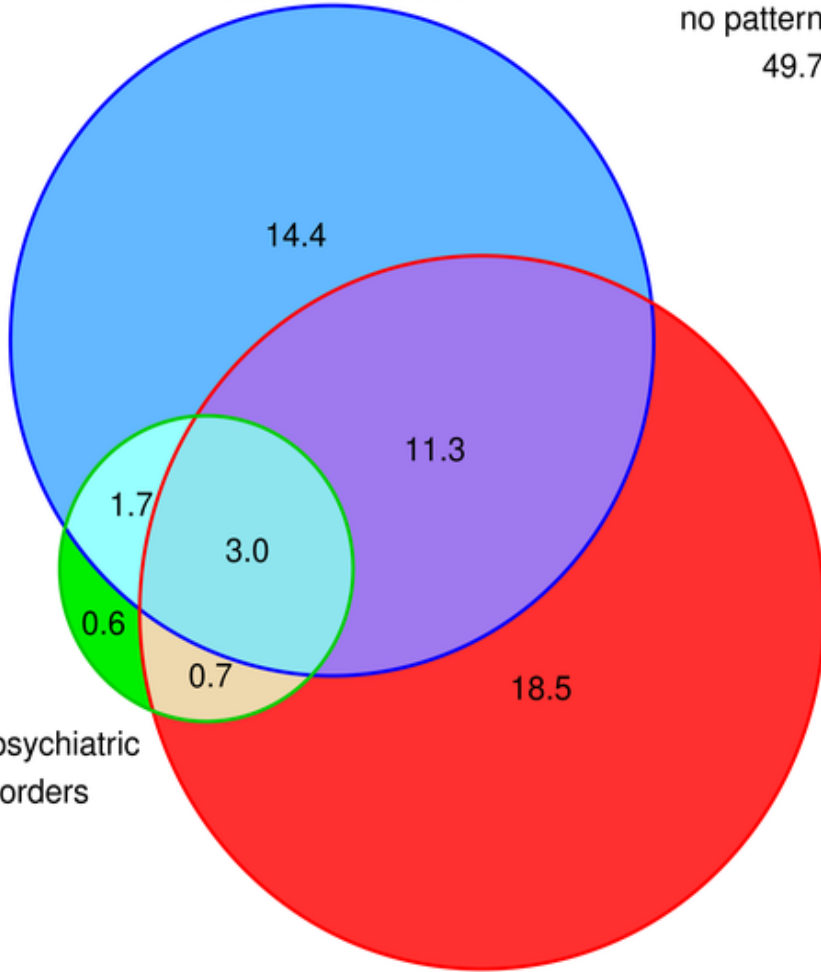


Hypertension Lipid disorder Low back pain	Hypertension Lipid disorder Osteoarthritis	Hypertension Lipid disorder Diabetes	Hypertension Lipid disorder CHD	Hypertension Low back pain Osteoarthritis	Hypertension Low back pain Diabetes
Hypertension Low back pain CHD	Hypertension Osteoarthritis Diabetes	Hypertension Osteoarthritis CHD	Hypertension Diabetes CHD	Lipid disorder Low back pain Osteoarthritis	Lipid disorder Low back pain Diabetes
Lipid disorder Low back pain CHD	Low back pain Osteoarthritis Diabetes	Low back pain Osteoarthritis CHD	Osteoarthritis Diabetes CHD		



cardiovascular and
metabolic disorders

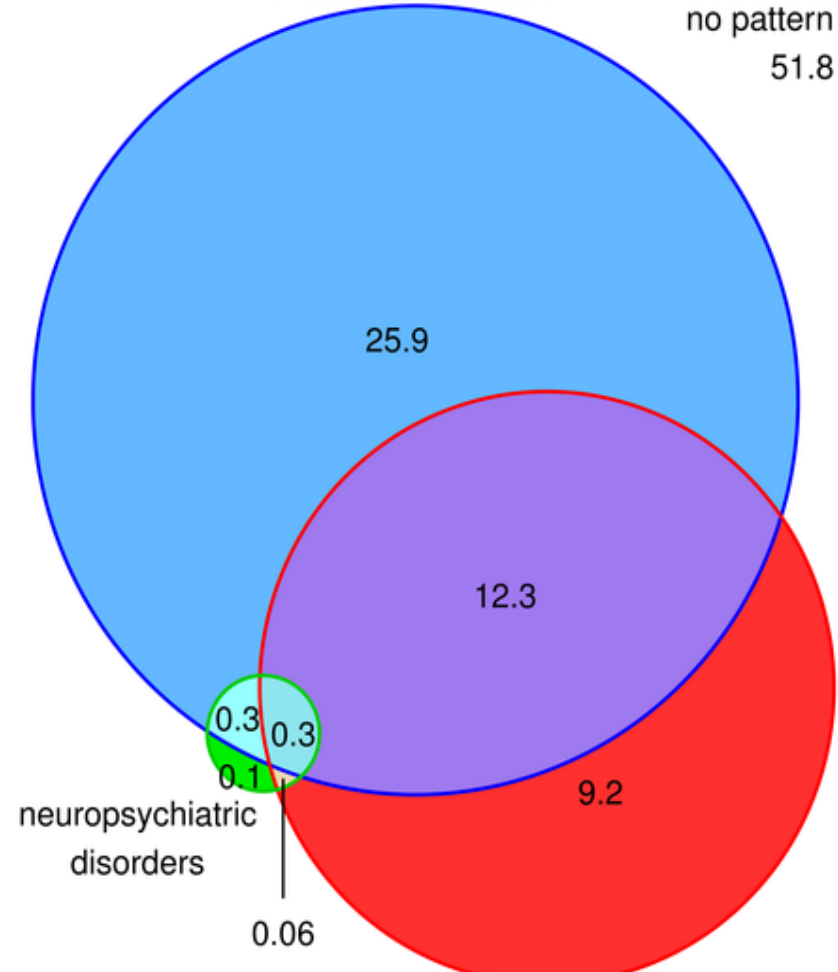
no pattern
49.7



W (n=86.176)

cardiovascular and
metabolic disorders

no pattern
51.8



M (n=63.104)



Blozik *et al.* *BMC Health Services Research* 2013, **13**:352
<http://www.biomedcentral.com/1472-6963/13/352>

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Table 1 Comparison of the comorbidities mentioned in Boyd’s case and the triads (van den Bussche 2011) and cluster (Schäfer 2010) model

Boyd 2005 [4]	van den Bussche 2011 [3]	Schäfer 2010 [17]
Hypertension	Included in 9 triads	Included in CMD cluster
Chronic heart failure	Not included	Included in CMD cluster
Stable angina	Chronic ischemic heart disease included in 3 triads	Chronic ischemic heart disease included in CMD cluster
Atrial fibrillation	Not included	Cardiac arrhythmias included in CMD cluster
Hypercholesterolemia	Lipid metabolism disorder included in 6 triads	Lipid metabolism disorder included in CMD cluster
Diabetes mellitus	Included in 3 triads	Included in CMD cluster
Osteoarthritis	Included in 3 triads	Included in ADS/P cluster
Chronic obstructive pulmonary disease	Not included	Included in ADS/P cluster
Osteoporosis	Not included	Included in ADS/P cluster

CMD: cardiovascular and metabolic disorder.

ADS/P: anxiety, depression, somatoform disorder, pain.

NPS: neuropsychiatric disorder.



Conclusions I

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1. Increased applicability for multimorbid populations to be an objective of the CPG.

The CPG development team should explicitly agree on the objective to create a guideline that ought to be applicable in an as large as possible proportion of the multimorbid population.

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2. Stratification of trial results by age and health Factors. Evidence for or against individual medical interventions should be interpreted separately for the relatively healthy patient population and the subgroup of multimorbid patients.

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3. Managing excessive complexity by focusing

on

context specific CPGs: The fundamental challenge is to produce CPGs that are not excessively long and complex. Triads and clusters can be used as a basis for developing case vignettes, which, in turn, help CPG developers to address critical interactions

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4. Cross-referencing to existing instruments.

There are a number of existing initiatives that aim at reducing problems with conflicting medications, such as the Medication Appropriateness Index, Beer's criteria, the Priscus list, the START/ STOPP initiative, or various computer-based drug interaction tools.

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5. Involvement of all professional groups and patient perspective.

6. International collaboration.



N of 1 guideline?

- Not yet an established term
- N of 1 trial: clinical trial in which a single patient is the entire trial, a single case study
- N of 1 guideline: recommendations for a single, exemplary case vignette



The whole problem



pars pro toto?





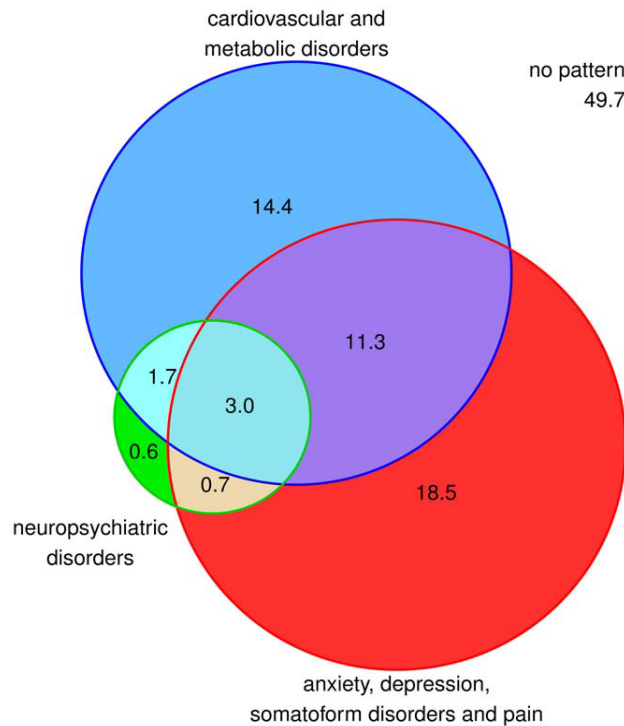
What we did

4-step mixed methods approach:

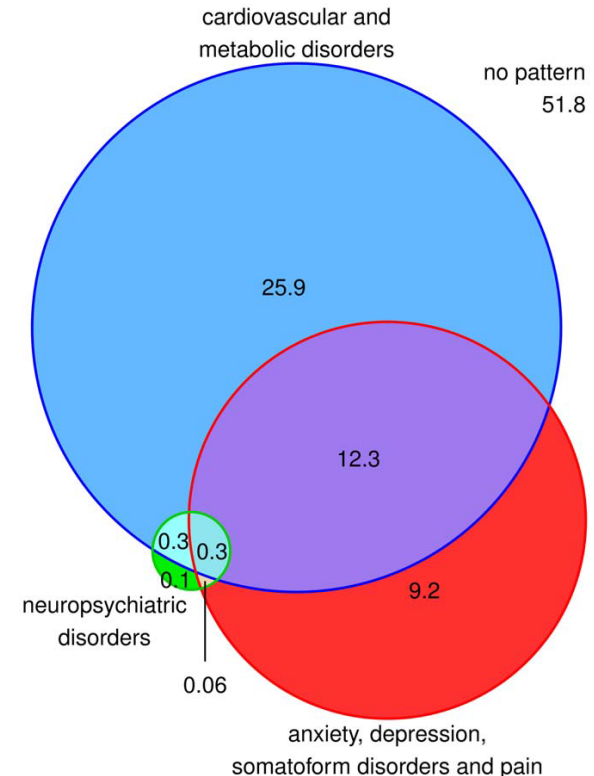
1. Review of epidemiological data on multimorbidity patterns
2. Interdisciplinary focus groups develop case vignettes
3. Development of case-based recommendations according to case vignettes (“N=1 guideline”)
4. Informal consensus of recommendations

Results I

Step 1: epidemiological data on multimorbidity



Overlapping of multimorbidity patterns (in %) related to the total female population.



Overlapping of multimorbidity patterns (in %) related to the total male population.



Results II

Step 2: developing case vignettes

Case	Characteristics	Social context	Current diagnoses
1	66 yrs, female	Retired, living alone	Hypertension, Hyperlipidemia, Chronic low back pain, Diabetes mellitus type 2, Polymyalgia rheumatica, Osteoporosis
2	80 yrs, male, 1.75m, 80kg	Retired, no further information	Hypertension, Hyperlipidemia, Atrial fibrillation, Congestive heart failure, Diabetes mellitus type 2, Coronary heart disease, Gout, Sleep apnea
7	76 yrs, male, 1.90m, 90kg	Living on his own; Ex-wife keeps household; speech problems	Hypertension, Hyperlipidemia, Cerebral ischemia, Peripheral artery occlusive disease, Mitral valve disorders,
10	55 yrs, female, 1.56m, 68kg	Immigrant; family problems; German speaking limited	Hypertension, Hyperlipidemia, Diabetes mellitus type 2
8	82 yrs, male, 1.85m, 90kg	widowed, living alone, daughter visits every 4 weeks	Hypertension, Atrial fibrillation, Depression
6	82 yrs, female, 1.65m, 80kg	Immigrant; speaks no German	Hypertension, Congestive heart failure, Renal insufficiency
9	60 yrs, male, 1.85m, 90kg	Working, father of family	Hypertension, Chronic low back pain, Coronary heart disease
3	84 yrs, female, 1.52m, 56kg	Living alone; social service is applying medication	Atrial fibrillation, Congestive heart failure, Vascular dementia, Fatigue
4	91 yrs, male, 1.85m, 76kg	Living with wife who had stroke; withdrawn from social life	Depression, Dementia, Urinary incontinence
5	66 yrs, female	Retired, no further information	Chronic low back pain, Osteoporosis, Chronic headache



Results V

Step 3: Developing case based recommendation

Example:

Case 4

The daughter of a 91 year old former bank director is calling the fathers GP. She is a bit worried. She has the feeling that her father has changed, he is quiet and lethargic, does not speak, is even more forgetful than normal and shows no interest in anything. She is wondering whether his worsened condition could be caused by his dementia, his depression or by his hearing loss?

So far, the patient was diagnosed with depression, dementia and urinary incontinence. A coronary heart disease was treated with 2 stent implantations at the end of the 1990ies and since then he hadn't had any complaints anymore.

Results IV

Step 3: developing case based recommendation

- Extraction of guideline recommendations based on current diagnoses and health problems (length between 8 – 42 pages)
- Developing summary presentations
 - Length ~ 1 ½ pages
 - Broad description of the patient (incl. social factors)
 - merge of the recommendation that fits specific to the case
- Discussion with clinical experts

Results VI

Step 3: Developing case based recommendation

Example:

Case 4 – Guideline recommendations (summary)

Depression	Dementia	Urinary incontinence
<ul style="list-style-type: none">• discuss pharmacological and non-pharmacological treatment options in light and intermediate depression• treat intermediate or severe depression with antidepressants (9-24 mon)• be aware of anticholinergic side effects of tricyclic antidepressants• monitor drug plasma levels in patients with multimorbidity/polypharmacy	<ul style="list-style-type: none">• treat dementia with the highest acceptable dose of cholinesteraseinhibitors• in moderate to severe dementia memantine is recommended• avoid tricyclic antidepressants in patients with dementia• physical activities are recommended	<ul style="list-style-type: none">• no guideline recommendations available



Results VII

Step 3: Developing case based recommendation

Example:

Case 4 – Expert recommendations (N=3, summary)

preventable adverse outcomes	necessary diagnostic and therapeutic interventions	social context
<ul style="list-style-type: none">• exsiccosis• neurological deficits• suicide• deafness	<ul style="list-style-type: none">• laboratory tests to rule out electrolyte disorder• Screen for neurological and intellectual deficits; clarify etiology• psychiatric consultation• Otolaryngologist consultation	<ul style="list-style-type: none">• clarify living situation, mobility• need for support (including care for wife)• address urinary incontinence



Acute change of communication

Exclude preventable adverse outcomes
(exsiccosis
neurological deficits
suicide
deafness)

Check:
electrolytes
neurological and
intellectual deficits
Social issues

Include:
Psychiatrist
Otolaryngologist

Known cause of problem?

Yes

No

Depression (think of antidepressants, no tricyclics, physical activity, psychotherapy)

Dementia (think of cholinesteraseinhibitor
physical activity)

Incontinence (think of help within family context)

Preventable outcomes excluded

Known diagnoses are not reason of the problem

Wait and see and accompany

Regular follow-up consultations e.g. with daughter



Conclusions II



- Develop real life vignettes
- Combine guideline recommendations and expert opinion
- experts do not criticise guideline recommendations but rather bring in additional aspects
- Next:
 - Integrate patients perspective
 - Common patterns are to be expected from the overview of N of 1 guidelines (e.g. living situation)



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THANK YOU!

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