1. **Summary**

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Summary

The vast majority of elderly people in Sweden are in good health and can take care of themselves into a very advanced age. However, many suffer from illnesses and injuries that can cause various functional impairments and subsequent need for care. Elderly people treated in inpatient facilities or living in municipal "special housing" often suffer from several concurrent chronic diseases (multimorbidity) and conditions after injuries (stroke, fractures, etc) – and many concurrent treatments (multiple treatments). This group of elderly patients often need significant care from the public sector.

Multimorbidity

The problem of multiple diagnoses (multimorbidity) in elderly people is illustrated in Table 1 on page 16, with a problem analysis of an 85-year old woman. When elderly people with multimorbidity come in for a medical consultation, they often generate a long list of symptoms and signs, which can be linked (with varying degrees of probability) to diseases, conditions after injuries, drug side effects, somatization of social and psychological problems, etc. This whole complex presentation of symptoms, functional impairments, organ and system diseases and possible drug side effects often changes unpredictably over time. The chronic problems are compounded by acute incidents (CVA, infections, falls, fractures, etc) in the "downhill" process of aging, with all the ethical problems that this brings. At the same time, the elderly patient's wishes and values must be respected in a complex organization with a multitude of professional categories and many more individual caregivers.

As Table 1 shows, analyzing this complicated medical situation requires broad medical skills, time, computerized information processing and

good continuity. Since many professional groups are involved in the care of the individual elderly patient, the need for coordination in both assessing the patient and setting up a treatment program is crucial (Figure 1.1). In addition, a well thought-out system for evaluating the progress and effect of all the treatment measures over time is vital. It is crucial that geriatric care be reorganized to meet these needs for assessment and coordination.

As a matter of human rights, all treatments must be based as strongly as possible on solid scientific knowledge and a recommended treatment must have a reasonable chance of improving the ailment/symptoms. This is as important for a 40-year old with a suspected acute myocardial infarction, as for an 85-year old patient with multiple ailments. It would be unacceptable age discrimination (ageism) if people over a certain age were not given access to the same qualified medical assessment and treatment as younger patients.

Format of the report

What expertise is available on the care of the elderly? This report summarizes the results of an extensive systematic literary review aiming to catalog (but not evaluate) the published literature on treatment studies in 18 different areas that are significant to geriatric care – care of patients older than 65. The aim has been to provide a basis for SBU to prioritize important evaluation projects in the field of geriatric care.

Each chapter/problem area has four sections: Definition, Background, Summary of published trials and Comments. The trials are listed in table form with treatment methods listed by row and types of trials listed by column, divided into:

- Randomized controlled trials (RCT)
- Controlled clinical trials (CCT)
- Uncontrolled clinical trials (UCT)

One or two primary authors are responsible for each chapter. In addition, special searches have been made on the areas of Nursing and Physiotherapy/Physical training for each chapter. These search results are also included in the tables of each chapter.

The goal of these uniform tables is to clearly show which treatment methods have been studied for each problem area, without linking this to medical specialties, activities or professional categories.

It is important to emphasize that the report only compiles *the number* of published scientific treatment trials in each problem area. None of the individual studies are evaluated here, as regards quality or results. The tables simply indicate how many trials of each type exist in each area.

Besides the literature review for the 18 problem areas (with reference lists at the end of each chapter), the report contains three additional chapters: "Background," "Methods" and "Comments from a nursing perspective."

Figure 1.2 shows a compilation of the number of RCTs, CCTs and UCTs for the 18 problem areas in the order in which they are covered in the report.

Figure 1.3 shows the number of RCTs and CCTs only as listed in Figure 1.2, but sorted by number of RCTs in descending order. This table shows that there are far more RCTs, nearly 200, for cognitive disorders (dementia conditions). As an aside, there are 51 published RCTs on acetylcholine esterase inhibitors. After that are an array of problem areas with about 50 RCTs on things like stroke, infections, skin ulcers, chronic obstructive pulmonary disease (COPD) and depression. The least number of RCTs exist for palliative care, confusion, chronic pain and malnutrition.

The largest number of UCTs are found in the fields of drug treatment, cognitive disorders, urinary incontinence, chronic pain and palliative care.

Figure 1.4 compares the number of RCTs regarding *drug treatments* with the number of RCTs for *other* treatments, in descending order. This table clearly shows that in most areas there are most RCTs for drug treatments. For COPD, equal numbers of RCTs have been published for drug treatments and other treatments. In five areas: skin ulcers, stroke, urinary incontinence, chronic pain and malnutrition, *other studies* (non-pharmacological) are predominant.

Figure 1.5 shows a compilation of the National Board of Health and Welfare's diagnosis registry for people aged 65+ admitted for inpatient care in Sweden in 1999. Each chapter also contains a figure showing the frequency of each diagnosis/problem area in the 1999 inpatient registry, divided into 5-year age ranges from 20 and up, to illustrate the age distribution of the diagnosis.

Lack of good quality studies

As figures 1.2–1.3 and the tables in each chapter show, there is a great lack of good quality scientific studies on the effect of different treatment methods on various ailments of the elderly. Even greater is the lack of studies highlighting the effects, both positive and negative (side effects), of pursuing several different treatment methods at once. There are very few treatment studies at all regarding care recipients aged 80+. As a result of this, much of the practical, clinical, regular care of the elderly is currently based on "proven experience" and the application of results from treatment research on significantly younger people. This means that our base of scientific expertise is weakest for the age groups (75+) that most often receive various types of treatments.

Dividing treatment trials into drug and non-drug treatments places a heavy focus on drugs – often because as a rule there are more trials for drug treatments. However, this detracts from studies of other, potentially valuable treatment methods. By listing the treatment methods studied in a common table for each problem area, we hope to stimulate further research based on the vital patient perspectives: "Did the patient improve?" and "Can the improvement be linked to the specific treatment method?"

Some conclusions

1. Inaccurate inpatient statistics

The 18 problem areas covered in this report were selected by a planning group consisting of three experienced geriatricians with research training, and one geriatric-specialist nurse with research training. However, other equally important areas are not covered in this report.

As Figure 1.5 indicates, the number of inpatient diagnoses for 1999 differs greatly between the selected problem areas. As expected, stroke diagnoses were frequent (27,859 in all), while there were surprisingly few diagnoses in the areas of urinary incontinence (222), chronic pain (122) and malnutrition (103). According to their respective chapters, these three conditions are very common in geriatric care and in fact constitute public health issues in these age ranges. The explanation for the great divergence in actual prevalence and the statistics is that inpatient diagnoses are based on acute illnesses, while underlying clinical problems (chronic ailments) are less often specified as formal diagnoses in the discharge notes. This indicates that today's inpatient statistics do not give an accurate picture of the total ailment statistics of elderly people.

2. Incomplete indexing

The scientific articles referring to clinical treatment trials of elderly patients in various databases are not consistently indexed, making it hard to gain easy access to all treatment literature in any given area. In addition, some abstracts (summaries) of trial articles do not contain information on the age of the patients, which means that some articles may have been excluded even though they referred to patients with an average age over 65. On the whole, the report shows a very large percentage of the available scientific literature on clinical trials of people over 65, but does not claim to be a complete listing.

3. Great variation between problem areas

The number of published clinical treatment trials and the types of studies vary widely between the selected problem areas (see Figures 1.2–1.3 and also points 6–7). It is also important to point out that even if an area has many RCTs, this does not necessarily mean that a satisfactory treatment method is available; this is discussed further in Chapters 2 and 3, "Background" and "Methods."

4. Poorest knowledge base where the need is greatest

Initially our intent was only to cover clinical trials of patients aged 75+. However, we soon realized that only a handful of trials exist where the entire patient population fell into that age range. In addition, the Medline database only has two age categories for patients: "over 65" and "over 80." This forced us to lower our age minimum to 65.

The average age of inpatients at many clinics is around 75, in geriatric care over 80 and in municipal elderly care often above 85. Paradoxically, the patient groups who receive the most inpatient care and the most "multiple treatments" are the ones for whom we have the poorest basis of scientific material. This lack of knowledge on the effects of treatment on elderly people, plus the fact that elderly people in general are more sensitive to side effects of medications, make careful and regular evaluation of the effects of treatment especially crucial for elderly patients. As the "Drug treatment" chapter indicates, this is especially true in cases of polypharmacy (concurrent treatment with several drugs). One can question if it is ethically defensible that many elderly patients receive a large number of long-term drug prescriptions with no structured evaluation of whether or not they create the desired effect in relation to the indications.

5. Important to convert science to practice

It is important to create good conditions for converting the results of published scientific trials into solid practice, so that they can benefit the patients in elderly care. To do this, elderly care must be organized to allow structured monitoring of the effects of different types of treatments on individual patients over time. This demands more continuity between the patient and the treating physician, as well as the development of uniform documentation defined by the clinical problem

6. Need for evaluation in elderly care

As Figure 1.3 shows, only a limited number of problem areas have extensive enough published scientific literature related to the elderly that an evaluation can be done:

• Cognitive disorders (dementia)
• Drug treatment
• Stroke
• Infections
• Skin ulcers
• Geriatric rehabilitation
• COPD (chronic obstructive pulmonary disease)
• Depression

Of these, SBU has previously evaluated stroke and COPD, and extensive reviews of depression and dementia are under way. This leaves four possible areas for scientific evaluation. All of the other areas have so few published trials that they cannot be evaluated. The goal here must be to stimulate further treatment research (see point 7).

7. Need for clinical treatment research in elderly care

There is a pressing need for clinical treatment research on elderly patients, particularly for those over 75. All of the writers of these chapters have pointed out the lack of knowledge and the need for more clinical trials. In particular, these areas show a significant lack of trials for the elderly:

• Palliative care
• Confusion/delirium
• Chronic pain
• Malnutrition
• Emergency geriatric care
• Parkinson's disease
• High blood pressure
• Urinary incontinence
• Heart failure
• Osteoporosis
• Coordinated service and care planning

Considering that many elderly patients have many concurrent ailments (multimorbidity) and many concurrent treatments (multiple treatments), there is also an urgent need for studies of the effect of several concurrent treatments, both combination treatments within one method (such as multiple drugs) and combinations of different treatment methods (such as drugs, nutrition and training).

Table 1 *Medical analysis of an 85-year old woman with multiple diagnoses.*
During the consultation, the patient described 16 different symptoms, and many objective signs and pathological blood samples. In addition to the "Physical examination" (current status) and "Blood tests," several other possible examinations are available, such as ECG, X-rays, ultrasound, functional examinations, etc. The analysis resulted in an overall "Assessment," codified in a five-part diagnostic matrix: organ, system, functional and symptom diagnoses; and suspected drug side effects. The diagnoses are not completely separate; many are interrelated in a complex web that is often further complicated by social and psychological problems and positive and negative effects of the individual treatment program. The diagnoses under the "Assessment" heading can be clarified by specifying the symptoms (A–P) and findings (1–19) that are potentially related to the diagnosis. For example, the organ diagnosis "Heart failure" can potentially be linked to symptom A and findings 1, 2, 3 and 7. Similarly, the function diagnosis "Muscle weakness" can potentially be linked to symptoms A and H and findings 5, 12, 13, 14, 15, 16 and 17.

Patient's symptoms	Objective findings		
	Physical examination	**Blood tests**	
A. Tiredness during the day	1. Rapid resting heart rate	16. Low hemoglobin (Hb)	
B. Nausea	2. Pulmonary rales	17. Abnormal salt balance	
C. Abdominal pains	3. Swelling of the legs	18. High blood sugar	
D. Constipation	4. Skin ulcers on several toes	19. Elevated serum creatinine	
E. Reduced appetite	5. Weakness left arm and leg		
F. Depression	6. Low spirits		
G. Difficulty swallowing	7. High blood pressure		
H. Weight loss	8. Impaired memory		
I. Decreased memory function	9. Impaired vision		
J. Visual impairment	10. Impaired hearing		
K. Hearing impairment	11. Difficulty naming objects		
L. Urinary incontinence	12. Difficulty walking		
M. Skin ulcers on several toes	13. Muscle weakness		
N. Dentures loose	14. Prone to falls		
O. Hard to find words	15. Need of ADL assistance		
P. Loneliness/isolation			

Assessment				
Organ diagnoses	**System diagnoses**	**Function diagnoses**	**Symptom diagnoses**	**Suspected drug side effects**
Heart failure Diabetes mellitus Glaucoma Cataract Vascular stenosis in the legs Vascular dementia Kidney failure Urinary incontinence	Malnutrition Atheromatosis High blood pressure Anemia Peripheral edema Skin ulcers Abnormal salt balance	Condition after stroke – left-side paralysis – aphasia – difficulty swallowing Decreased memory Depression Visual impairment Hearing impairment Muscle weakness Prone to falls Physical inactivity	Tiredness during the day Constipation Abdominal pains Reduced appetite Swelling of the legs	Tiredness during the day Constipation Nausea Reduced appetite Muscle weakness

Patient's symptoms

Symptom	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
A. Tiredness during the day	•	•			•	•		•	•			•	•		•	•	•	•	•
B. Nausea	•	•				•											•	•	•
C. Abdominal pains																	•	•	
D. Constipation						•							•				•	•	•
E. Reduced appetite	•	•			•	•						•	•		•	•	•	•	•
F. Depression					•	•		•								•	•		
G. Difficulty swallowing					•	•		•							•				
H. Weight loss	•				•	•							•			•	•	•	•
I. Decreased memory function					•	•		•			•					•	•		
J. Visual impairment									•										
K. Hearing impairment										•									
L. Urinary incontinence	•	•	•		•			•							•		•	•	•
M. Skin ulcers on several toes			•	•			•						•		•	•		•	
N. Dentures loose					•			•					•		•				
O. Hard to find words					•			•			•						•	•	
P. Loneliness/isolation		•			•	•		•	•	•	•	•	•	•	•	•			

Objective findings

Figure 1.1 Potential connections between the patient's symptoms and objective findings. The symptoms are marked with the letters A–P as defined in Table 1. The findings from the examinations are marked with the numbers 1–19 as defined in Table 1. Each point in the figure is thereby defined with a combination of a letter and a number to indicate a potential link between the patient's symptoms and the findings.
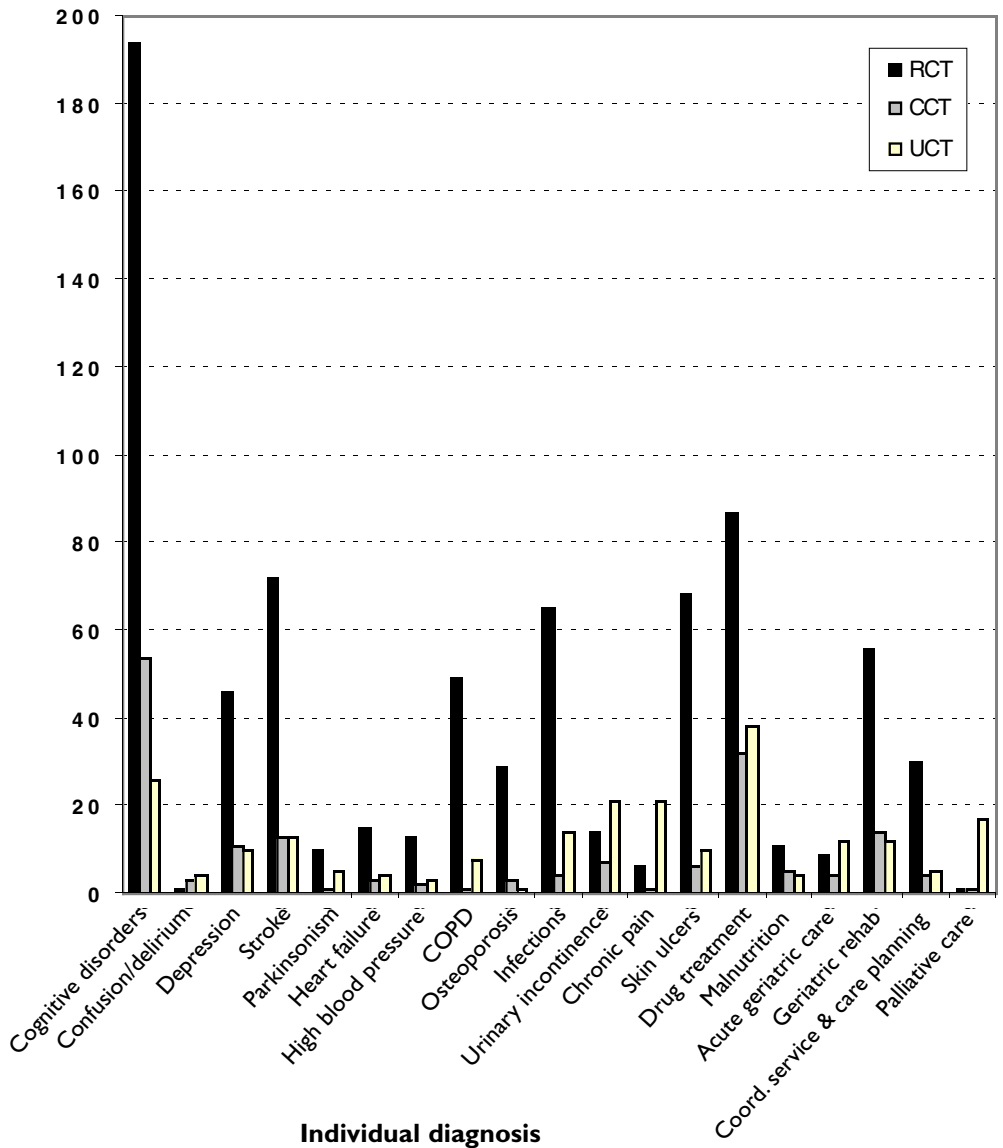
Number of studies

Figure 1.2 *Comparison of the number of RCTs, CCTs and UCTs for each problem area, in the order in which they occur in this report.*
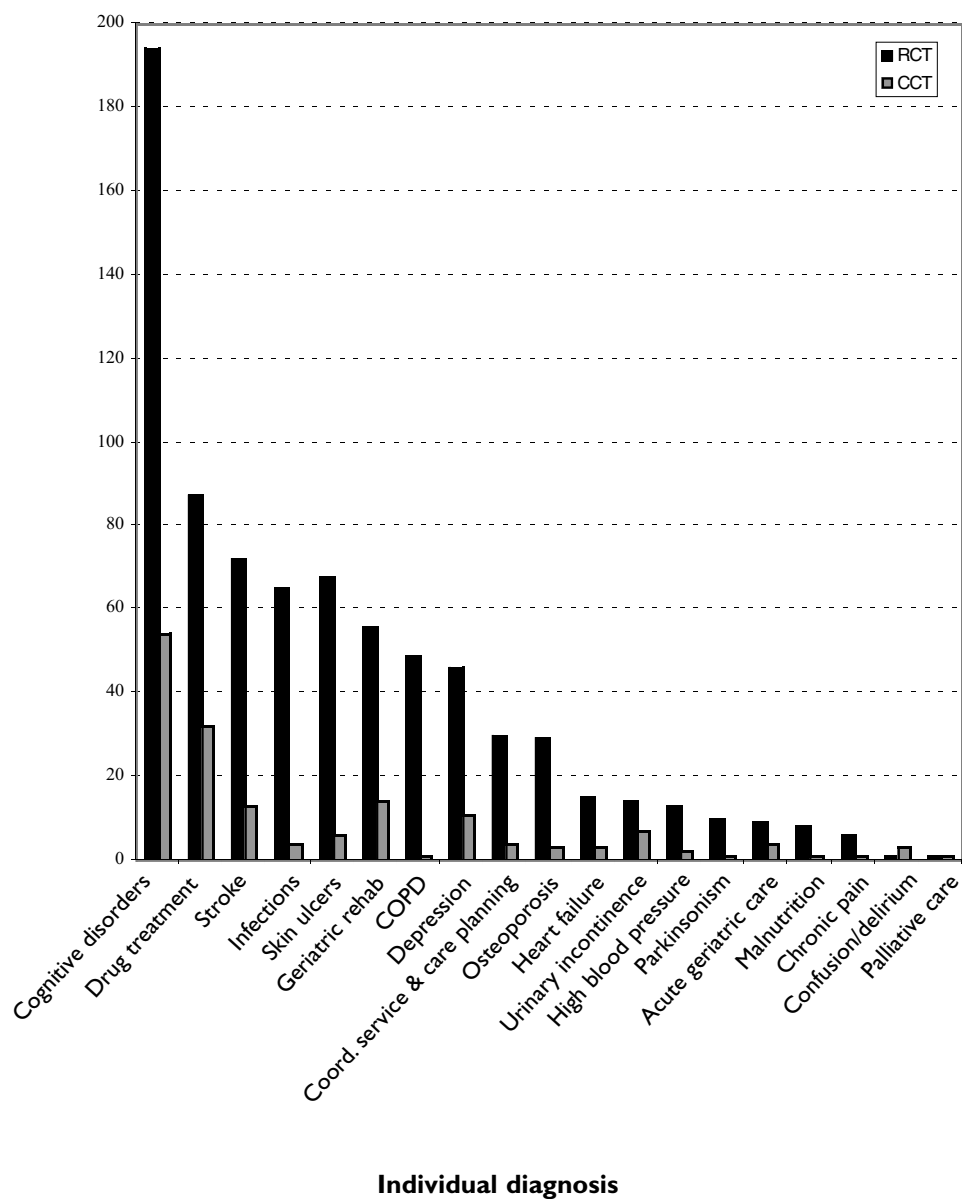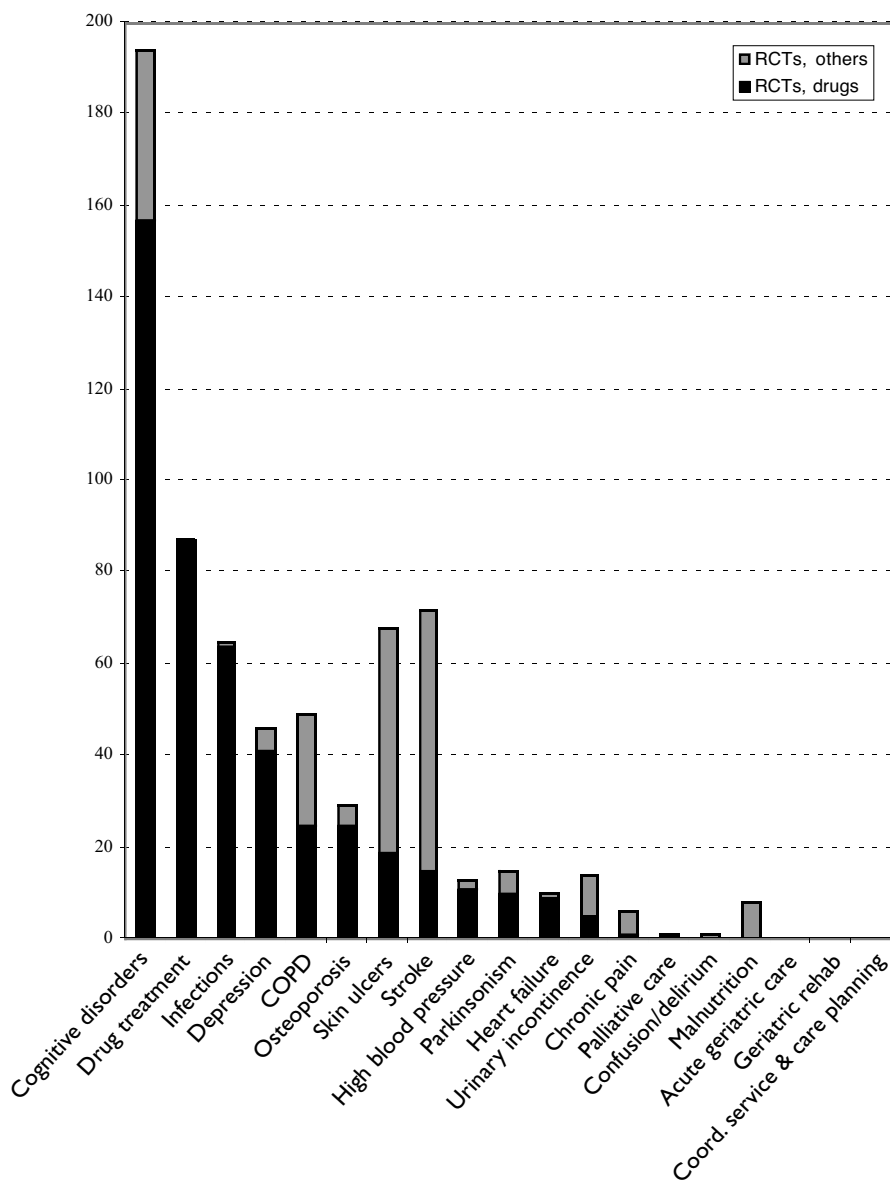
Number of studies

Figure 1.3 *Comparison of the number of RCTs and CCTs for the problem areas, in descending order by RCT.*
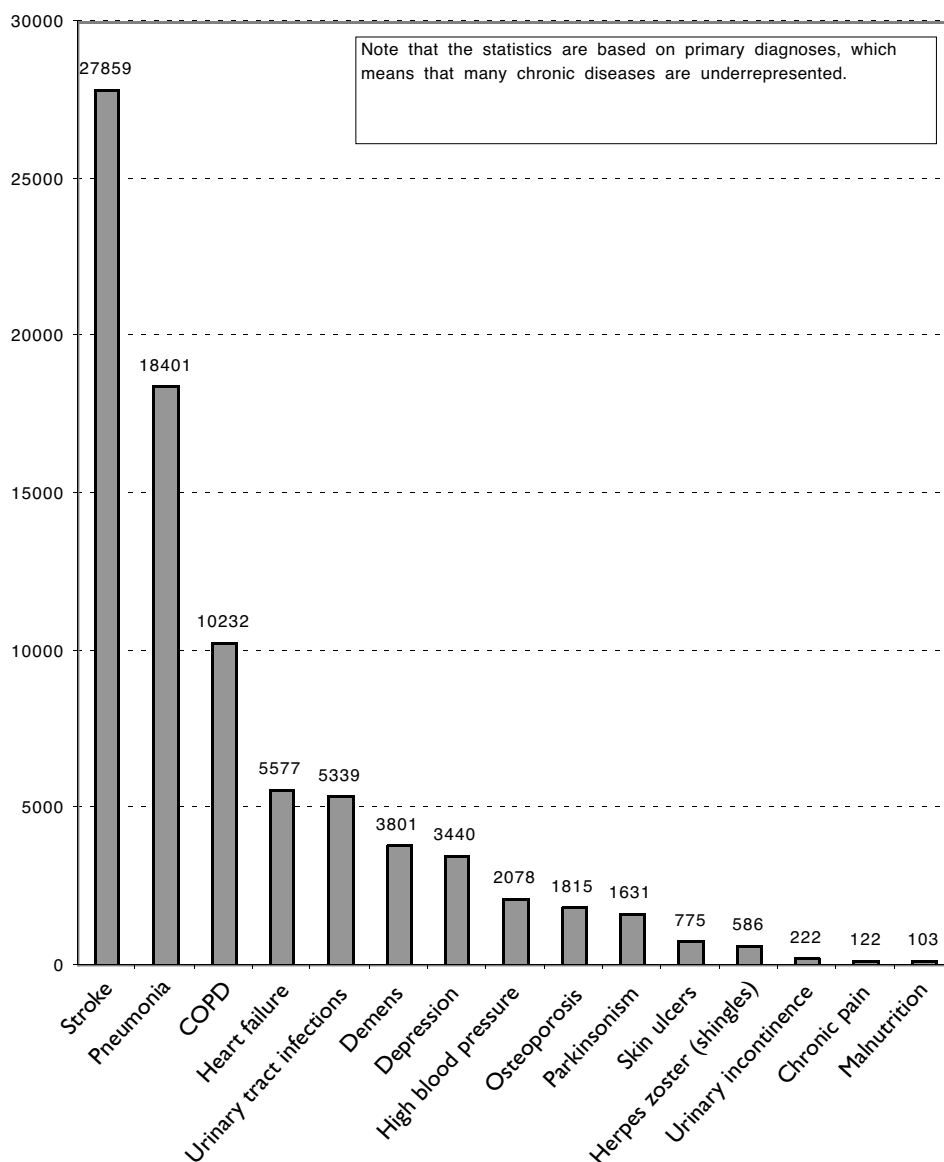
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Number of studies

Figure 1.4 *Comparison of the number of RCTs for drug studies with the number of RCTs for other treatment methods, in descending order by drug RTCs.*

Number of diagnoses

Note that the statistics are based on primary diagnoses, which means that many chronic diseases are underrepresented.

Individual diagnosis

Figur 1.5 *Compilation of the number of inpatient diagnoses in 1999 (according to the Swedish National Board of Health and Welfare register) for the problem areas discussed in this report.*