

# Are general practitioners able to accurately diagnose dementia and identify Alzheimer's disease? A comparison with an outpatient memory clinic

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## SUMMARY

Since the introduction of agents for the treatment of Alzheimer's disease, and in order to increase understanding of a patient's changed behaviour, it has become particularly important that dementia is both diagnosed at an early stage and differentiated into its subtypes. This study aims to ascertain whether GPs were able to diagnose dementia and identify the type of dementia accurately and confidently. GPs were well able to assess the firmness of their own dementia diagnoses, which supposes that they are able to make appropriate selection for referral. Diagnostic support from a specialised team can particularly contribute to identifying the type of dementia.

**Keywords:** dementia; Alzheimer's disease; diagnosis; memory clinic; general practice.

## Introduction

THERE is a debate about whether the diagnosis of dementia can be performed by general practitioners (GPs) alone or whether they should be supported by specialised medical teams, such as those found in outpatient memory clinics.<sup>1,2</sup> To ascertain whether GPs were able to diagnose dementia and identify the type of dementia accurately and confidently, a cross-sectional comparison was set up between GPs and a memory clinic.

## Method

### GPs and patients

All GPs from an eastern district (Nijmegen) in the Netherlands were approached by letter to participate in a cross-sectional comparison. The 64 participating GPs diagnosed patients suspected of dementia using the Dutch dementia guideline for GPs.<sup>3,4</sup> To be included in the study, suspected patients had to:

- be fifty-five years of age or older, or
- show signs of cognitive impairment.

The GPs completed a self-recording form that identified their actions, findings, conclusions, and diagnostic confidence. After each GP had completed the diagnostic process, the patient was referred to the outpatient memory clinic of the University Hospital in Nijmegen.

### Memory clinic

Serving as a reference standard, the patients were diagnosed in an outpatient memory clinic by a multidisciplinary team that included a geriatrician, a neurologist, and a psychologist. The Cambridge Mental Disorders of the Elderly Examination (CAMDEX) was applied.<sup>5</sup> Internationally established criteria were used for the diagnosis of dementia<sup>6</sup> and Alzheimer's type dementia.<sup>7</sup> The memory clinic's team was blinded to the GPs' diagnoses.

### Analysis

Diagnostic agreement or disagreement between the GPs and the memory clinic was expressed in percentages and in Cohen's kappa, a measure for the inter-rater agreement that corrects for random agreement. The primary diagnoses were compared on the dichotomous level 'dementia yes/no' and on the nominal variable 'type of dementia and other disorders'.

## Results

### Patients and GPs

Sixty-four participating GPs registered and referred 107 patients with cognitive impairment; a mean of 1.7 patients per GP during the average participation time of 16 months. For 93 patients, the diagnostic evaluation was completed by both the GPs and the memory clinic; 14 patients dropped out because of refusal (9), medical complications (3), and death (2). The clinical and demographic characteristics of these 14 patients were comparable with the other 93 patients. The mean age of the patients was 74 years (range = 55 to 94, standard deviation [SD] = 8), 61% were female, 65% were married, 93% lived independently, and 81% had an accompanying relative.

The participating GPs were comparable with the Dutch GP population with respect to age (mean = 45 years, range = 34 to 64 years, SD = 8), practice experience (mean = 15 years, range = 2 to 35 years, SD = 7), practice size (mean = 2114 patients, range = 940 to 3500, SD = 404) and sex (21% female versus 17% nationwide).<sup>8</sup> On average, 86% of the diagnostic recommendations of the national dementia guideline for GPs were applied (SD = 8.5, range = 66% to 100%).

### Diagnostic accuracy

The memory clinic and the GPs agreed on the presence of dementia in 76% of the 93 cases (kappa = 0.48, 95% confidence

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**Table 1.** Dementia diagnoses of the GPs and the memory clinic.

GPs	Dementia		Memory clinic		Total
	Alzheimer-type	Other <sup>a</sup>	No dementia	Unavailable	
Dementia					
Alzheimer-type	23	11	9	6	49
Other <sup>a</sup>	6	10	3	2	21
No dementia	5	4	22	6	37
Total	34	25	34	14	107

<sup>a</sup>Vascular dementia, mixed, frontotemporal dementia, alcohol dementia, Lewy Body dementia, unknown type.

interval [CI] = 0.29 to 0.67). The GPs over-diagnosed 12 (13%) cases and under-diagnosed 10 (11%) cases. For the dementia cases, agreement was found in the dementia type in 53% of the cases ( $\kappa = 0.16$ , 95% CI = 0.00 to 0.34) (Table 1).

The GPs indicated diagnostic confidence in 59% of all cases, which was associated with the level of diagnostic agreement with the memory clinic ( $\chi^2 = 14.4$ ,  $P = 0.002$ ). Diagnostic confidence of Alzheimer's disease ( $n = 44$ ) was reported in 50% of cases, which was not associated with diagnostic agreement ( $\chi^2 = 2.3$ ,  $P = 0.5$ ).

## Discussion

The diagnostic accuracy of this representative sample of GPs who applied the dementia guideline was moderate, but may be seen as acceptable. This was not the case with respect to identifying the type of dementia.

With respect to the debate about whether GPs are able to diagnose dementia alone or should be supported by specialized medical teams, our results support a balanced point of view. On the one hand, the memory clinic provided a substantial contribution, especially regarding the identification of the type of dementia. Therefore, one can argue that the prescription of anti-Alzheimer's drugs should be preceded by medical specialist assessment. On the other hand, the GPs were well able to assess the firmness of their own dementia diagnoses, which supposes that they are able to make an appropriate selection for referral. A future barrier for routine specialist assessment may be refusal to be referred.

Our study had several limitations. The rather small sample size prevented an estimation of the GPs' accuracy in all dementia subtypes. Furthermore, the case-finding method prevented us from estimating the proportion of demented patients at home who were not identified by their GP. Also, the diagnostic criteria of the GPs' guideline were based on the DSM-III-R, while, at the memory clinic, the DSM-IV criteria were used.<sup>3,6</sup> Nevertheless, this probably accounted for only a small degree of the diagnostic variation.<sup>9</sup>

### Key points

- The GPs agreed with the memory clinic on a diagnosis of dementia in 76% of the patients, but their accuracy fell to 53% with respect to the differentiation between Alzheimer's-type dementia and other types.
- The GPs were well able to assess the firmness of their own dementia diagnoses, which supposes that they are able to make appropriate selection for referral.
- Diagnostic support from a specialised team can particularly contribute to identifying the type of dementia.

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