1 Smith R. The mental health of prisoners. 1. How many mentally abnormal prisoners? *BMJ* 1984;288:308-10.
2 Smith R. The mental health of prisoners. 2. The fate of the mentally abnormal in prison. *BMJ* 1984;288:386-8.
3 Bluglass R. Mentally disordered prisoners: reports but no improvements. *BMJ* 1988;296:1757-8.
4 Mitchison S, Rix KJB, Renvoize EB, Schweiger M. Recorded psychiatric morbidity in a large prison for male remanded and sentenced prisoners. *Med Sci Law* 1994;34:324-30.
5 Martin E. Prison medicine. *J R Coll Gen Pract.* 1987;37:377-8.
6 Gunn J, Madden A, Swinton M. Treatment needs of prisoners with psychiatric disorders. *BMJ* 1991;303:338-41.
7 Teplin L. Criminalising mental disorder. *Am Psychol* 1984;39:794-803.
8 Michaels D, Zoloth S, Alcabes P, Safyer S. Homelessness and indicators of mental illness among inmates in New York City's correctional system. *Hosp Community Psychiatry* 1992;43:150-5.
9 Taylor PJ, Gunn J. Violence and psychosis. 1. Risk of violence among psychotic men. *BMJ* 1984;288:1945-9.
10 Coid JW. Mentally abnormal prisoners on remand: rejected or accepted by the NHS? *BMJ* 1988;296:1779-82.
11 Gunn J, Madden A, Brooke D, Taylor D. Point prevalence of mental disorder in unconvicted prisoners in England and Wales. *BMJ* (in press).
12 Davidson M, Humphreys MS, Johnstone EC, Cunningham Owens DG. Prevalence of psychiatric morbidity among remand prisoners in Scotland. *Br J Psychiatry* 1995;167:545-8.
13 Endicott J, Spitzer RL. A diagnostic interview: schedule for affective disorders and schizophrenia. *Arch Gen Psychiatry* 1978;35:837-44.
14 Mayfield D, McLeod G, Hall MSW. The CAGE questionnaire: validation of a new alcoholism screening instrument. *Am J Psychiatry* 1974;131:1121-3.
15 Phillips GT, Gossop MR, Edwards G, Sutherland G, Taylor C, Strang G. The application of the SODQ to the severity of opiate dependence in a British sample. *Br J Addict* 1987;82:691-9.
16 Ammons RR, Ammons CH. The quick test (QT): provisional manual. *Psychol Rep* 1962;11:111-61.
17 Maxwell AE. Coefficients of agreement between observers and their interpretation. *Br J Psychiatry* 1977;130:79-83.

(Accepted 24 September 1996)

Point prevalence of mental disorder in unconvicted male prisoners in England and Wales

Deborah Brooke, Caecilia Taylor, John Gunn, Anthony Maden

Abstract

***Objectives*—To determine prevalence of mental disorder among male unconvicted prisoners and to assess the treatment needs of this population.**

***Design*—Semi-structured interview and case note review of randomly selected cross section of male remand population. Non-attenders were replaced by the next name on prison roll.**

***Setting*—Three young offenders' institutions and 13 adult men's prisons.**

***Subjects*—750 prisoners, representing 9.4% cross sectional sample of male unconvicted population.**

***Main outcome measures*—Prevalence of ICD-10 diagnoses of mental disorder, and associated treatment needs.**

***Results*—Psychiatric disorder was diagnosed in 469 (63%) inmates. The main diagnoses were: substance misuse, 285 (38%); neurotic illness, 192 (26%); personality disorder, 84 (11%); psychosis, 36 (5%); other and uncertain, 36 (0.5%). Subjects could have more than one diagnosis. The average refusal rate was 18%. In total 414 inmates (55%) were judged to have an immediate treatment need: transfer to an NHS bed, 64 (9%); treatment by prison health care services, 131 (17%); motivational interviewing for substance misuse, 115 (15%); and therapeutic community placement, 104 (14%).**

***Conclusions*—Mental disorder was common among male unconvicted prisoners. Psychosis was present at four or five times the level found in the general population. Extrapolation of our results suggests that remand population as a whole probably contains about 680 men who need transfer to hospital for psychiatric treatment, including about 380 prisoners with serious mental illness.**

Department of Forensic Psychiatry, Institute of Psychiatry, De Crespigny Park, London SE5 8AF
Deborah Brooke, *lecturer*
Caecilia Taylor, *lecturer*
John Gunn, *professor*
Anthony Maden, *senior lecturer*

Correspondence to:
Dr Maden.

BMJ 1996;313:1524–7

Introduction

In 1993 about 48 000 people—9% of those awaiting trial—were remanded into custody by the courts to be held as unconvicted prisoners until the trial. About a fifth of all those remanded in custody were acquitted, and a further fifth of males received a community sentence.[1] It is government policy that prisoners on remand who have a serious mental disorder should be transferred to psychiatric hospital, but this is often not done.[2 3] Even when a prisoner is transferred there are delays,[4] during which the patient remains in prison and is at increased risk of self harm and suicide.[5 6] Studies conducted in one London remand centre showed that two thirds of psychotic men were rejected for hospital admission,[4] and the outcome was even worse for other diagnoses.[2]

In addition to causing unnecessary suffering to mentally ill prisoners, this situation creates a risk to the public. Three recent inquiries into killings by mentally ill people described previous remands in custody, during which mental disorder was recognised but not adequately managed.[7-9] Some of the most difficult psychiatric patients in the country are assessed and treated entirely within prisons, which are not designed for this purpose and cannot match the standards of hospitals. For example, the premises of prison health services are not regarded as "hospitals" under the Mental Health Act (1983), and so patients cannot be treated against their will.

Thus, the population of remanded prisoners represents a pool of unmet need for psychiatric treatment of unknown size. About a third of all male prisoners who are sentenced can be given a psychiatric diagnosis, including 2% who are psychotic.[10] Higher levels of morbidity would be predicted in the remand population, because this group have a variety of risk factors for mental illness (such as substance misuse, personality difficulties, and the stress of reception into custody),[11] and the suspected presence of mental disorder may lead to a remand into custody for the preparation of reports. Undocumented demand is likely to remain unmet.

This paper describes the point prevalence of psychiatric disorder in remanded prisoners in England and Wales, together with an assessment of the immediate treatment needs of those prisoners who were given a diagnosis. A list of the prisons visited and copies of the interview schedule and the coding manual can be obtained from us and are included in the report of our study.[12]

Method

SELECTION OF PRISONS AND SUBJECTS

Prisons are grouped by the Home Office into three geographical directorates (North and Midlands; London, East Anglia, and Kent; Central England, Wales, and the West Country). We tried to see a 10% sample from each directorate. It is likely that prisoners with obvious mental disorder will be accommodated in larger prisons with more health services so, in order to reduce bias, we included a cross section from each type of prison (large inner city; smaller, local prisons; purpose built remand centres; and prisons representative of all levels of security) within each directorate. The study

was conducted at 13 men's prisons and three young offenders' institutions (holding male prisoners aged under 21) spread throughout England and Wales.

The sample size was chosen to give reasonable confidence intervals, based on the assumption that less than 10% of prisoners would be suffering from psychosis. Within each prison, names were drawn from a list of all remanded prisoners, organised by location within the prison. Selection of (for example) every third name therefore produced a stratified random sample. Each subject was told that the survey was confidential, that it was being conducted by doctors from outside the prison, that participation was voluntary, and that no subject would be identified. In the event of refusal the next name on the roll was selected.

INTERVIEWS

A semistructured interview was administered to each consenting subject by a forensic psychiatrist (CT or DB). The interview had been designed for the project and piloted on 20 prisoners, and items with interobserver reliability of less than 90% had been discarded. The interview was designed to elicit each subject's demographic data, personal and psychiatric history, and evidence of personality disorder. A brief assessment of intelligence quotient (IQ) was included,[13] and current mental state was assessed. Diagnoses were recorded according to the criteria of ICD-10 (international classification of diseases, 10th revision). If relevant, the subject's experiences and views of treatment were noted. After the interview, the prison disciplinary and medical records were consulted.

A previous survey in this department had used a similar methodology.[10] To assess the validity of this method, we included an operational diagnostic psychiatric interview—the schedule for affective disorders and schizophrenia, lifetime version (SADS-L).[14] This was shortened to exclude personality disorder and substance misuse, which were covered by other parts of the interview.

ASSESSMENTS

For subjects with mental disorder, the interviewers allocated current diagnoses taking all this information into account. Subjects could be given more than one diagnosis. A decision was made about immediate treatment needs, based on a clinical approach in which, for example, treatment of psychosis took precedence over concurrent alcohol dependency. In the interests of reliability, all problematic diagnostic or management issues were considered by both interviewers jointly. Any case which was thought to need more discussion was presented at a monthly multidisciplinary meeting convened to oversee the survey. In addition to considering clinical problems, the meeting also reviewed six cases chosen randomly from each month's interviews. This procedure increased validity by reducing the likelihood of idiosyncratic decisions by individual interviewers.[15]

Treatment allocations

Subjects could be allocated one of four treatment options.

Prison health services—Subjects needed continuing care within prison. This included a range of interventions, such as consultations with primary care services and liaison with visiting psychiatrists. This option included transfer to the prison health centre for subjects whose symptoms were too severe to be managed on normal location. Such transfers were expected to be brief. A prison health centre allows greater supervision and opportunities for assessment, but it cannot match the facilities of a psychiatric hospital.

Table 1 — *Prevalence of psychiatric disorder according to ICD-10 criteria among 750 male remanded prisoners*

Diagnosis	No (% (95% confidence interval)) of subjects*
Psychosis	36 (4.8 (3.4 to 6.6))
Neuroses:	
Neurotic disorder	135 (18.0 (15.3 to 20.7))
Adjustment disorder	57 (7.6 (5.8 to 20.7))
Personality disorder	84 (11.2 (8.9 to 13.5))
Sexual deviations	15 (2.0 (1.1 to 3.3))
Harmful or dependent misuse of alcohol or other drugs	285 (38.0 (34.5 to 41.5))
Organic disorder	7 (0.9 (0.4 to 1.9))
Mild mental retardation†	5 (0.8 (0.3 to 1.8))
Diagnosis uncertain	9 (1.2)
No diagnosis	281 (37.5)

*Subjects could have more than one diagnosis, so total exceeds 100%.
†Sample size reduced to 651 because IQ test was not administered to subjects whose first language was not English.

Motivational interviewing for substance misuse—The term "substance misuse" implied that the subject had dependence (that is, pathological or physiological evidence of dependence, such as the acquisition of tolerance) or harmful use (that is, a history of mental or physical harm secondary to use of drugs or alcohol). These two diagnoses, harmful use and dependence, were used as in ICD-10. This treatment option was allocated to those subjects whose dependency or harmful use was uncomplicated by major mental disorder or personality disturbance, and who would benefit from an exploration of their lifestyle and advice on harm reduction. This might be only a single interview, but further treatment options (such as rehabilitation) could be examined with the subject.

Hospital transfer—This option was reserved for those men whose disorder was sufficiently serious to need transfer to NHS inpatient services because of their risk to others or to themselves. It was further refined by stipulating the level of security necessary—low security (open or locked ward), medium security (a regional secure unit), or maximum security (treatment in one of the three special hospitals).

Assessment for therapeutic community—This option was used for those with personality or sexual disorders, and a minority of substance misusers, who were considered suitable for group psychotherapy in a residential setting. Such treatment is currently available in prison (such as at Her Majesty's Prison Grendon) and outside (such as the Henderson Hospital or drug rehabilitation centres). Further assessment would be necessary to confirm suitability.

Results

We interviewed 544 adult men, representing 9% of the adult male remand population, and 206 young offenders (10%). These groups have been combined to give a sample of 9.4% of all male unconvicted prisoners (based on 7973, the number of men held on remand in England and Wales on 31 December 1992). The average refusal rate was 18% (range 4-31% in different prisons). Subjects had a mean age of 27.5 years (range 16.0-60.8, SD 8.9), and the median time spent remanded in custody was 64 days (range 1-501). The subjects did not differ from all male remandees in terms of basic demographic variables.

Demographic and clinical data were abstracted from the prison records of a representative group of 58 prisoners who refused the interview. Of 25 comparisons between these 58 refusers and the 544 adult men, none reached significance at the $P<0.05$ level.

Table 2—*Recommended treatment for psychiatric disorders among 750 male remanded prisoners*

Treatment	No (%) of subjects
NHS bed	64 (9)
Prison health services	131 (17)
Motivational interviewing for substance misuse	115 (15)
Assessment for therapeutic community	104 (14)
No treatment*	336 (45)

*This comprises subjects without a diagnosis of psychiatric disorder and those with a diagnosis but refusing treatment or who were not thought to need treatment under the Mental Health Act (1983).

PSYCHIATRIC DISORDERS

Psychiatric disorder was diagnosed in 469 (63%) of the subjects, and table 1 shows the prevalence of the different diagnoses made according to ICD-10 criteria. About a third of the subjects could be given more than one diagnosis, mainly due to misuse of several substances and mood disorder. The number of subjects given a diagnosis of neurotic disorder on clinical criteria did not differ significantly from the number obtained with the operational psychiatric interview (192 *v* 184, $\chi^2 = 0.2$, df = 1, P>0.2). The operational interview identified only a minority of the cases of psychosis diagnosed on clinical grounds (14 *v* 36, $\chi^2 = 10.0$, df = 1, P<0.01) because subjects with a psychotic illness were often too disturbed to tolerate the operational interview.

Drug or alcohol misuse formed the largest diagnostic group. Neurotic illness was the next most prevalent. This group included 57 subjects (7.6%) with mild or moderate depression (ICD-10 codes F32.0 and F32.1 respectively) and 14 (1.9%) with severe depression (codes F32.2 and F32.3). Twenty one subjects (2.8%) had anxiety states, and 13 (1.7%) had post-traumatic stress disorder (code F43.1). Of the 36 subjects with psychosis, 24 were known to have a psychiatric history by prison health staff.

Schedule for affective disorders and schizophrenia, lifetime version (SADS-L)—For purposes of comparison, the main findings with this method were schizophrenia, mania, and unspecified functional psychosis (14 subjects, 2%); minor depression (24, 3%); major depression (109, 15%); panic disorder (14, 2%); generalised anxiety and phobic disorders (25, 3%); untestable (25); and missing data (24). These diagnoses are not strictly comparable with those made according to ICD-10 because the operational interview uses different time criteria and different numbers of symptoms. For the purposes of this study, a major difference was the absence of an "adjustment disorder" diagnosis (that is, states of distress in response to life events, lasting not longer than six months); most of these cases were diagnosed by the SADS-L as depression.

IMMEDIATE TREATMENT NEEDS

A total of 414 (55%) subjects were judged to require immediate treatment, and table 2 lists those allocated to different treatments. Most treatment could be provided by health services within the prison. However, 64 subjects (9%, 95% confidence interval 7% to 11%) needed transfer to an NHS bed. Decisions about transfer were made on clinical grounds, using the criteria of severity of disorder, risk of harm to self or others and need for specialist assessment or treatment. On clinical grounds alone, some of these subjects might have been managed by community psychiatric teams. In practice, however, the courts would be unlikely to allow treatment outside hospital because of concern about the risk of reoffending or absconding. Of our 64 subjects requiring transfer, the largest diagnostic groups were psychosis (29 subjects) and neurotic illness (15). The remainder were a disparate group including sexual deviation, organic mental disorder, and learning disability. While 30 of the subjects could have been safely treated in a local hospital, 32 needed medium security and two needed maximum security.

The proportions of subjects given diagnoses, and the proportions allocated to the different treatment options, did not differ between the two interviewers.

Discussion

The most obvious limitation of our study is the 18% refusal rate. Despite our best efforts to show that refusers and non-refusers were similar, the psychiatric status of the refusers remains unknown. The refusal rate is much higher than that obtained in sentenced prisoners.[10] Our impression was that remand prisoners were less cooperative, many being angry that they were detained before being tried. Prisoners have been paid for their participation in some American studies, which introduces new problems.

Our method of sampling probably results in overrepresentation of long stay remandees. These prisoners may have lower rates of neurotic disorders associated with the impact of arrest and imprisonment, but apparent mental disorder can prolong the period of remand for petty offences.[2] We found no difference in length of remand between psychotic and non-psychotic prisoners, but a degree of confounding cannot be excluded.

The results suggest that, in the detection of psychosis in prisons, clinical methods using psychiatrists to conduct assessments are superior to a standardised instrument. A third of prisoners with a psychosis did not give a history of psychiatric contact and so would not be picked up by screening questions on this topic. For diagnoses other than psychosis, the standardised instrument and clinical methods produced similar results. Both approaches depend on self reporting, and psychiatric disorder carries considerable stigma within prison. Any study based on a single interview will underestimate the true level of morbidity. Nonetheless, our figures are greater than those found in the community (psychosis 0.4%, neurosis 14%, alcohol dependence 8%, drug dependence 3%).[16]

Our results are consistent with findings in two other countries: Teplin found 6% of jail detainees to be psychotic in Chicago,[17] and psychiatric symptoms were reported by 57% of remand prisoners in Geneva, although this study did not record diagnoses.[11]

IMPLICATIONS FOR PRACTICE

Of those prisoners requiring treatment, the largest group needed prison health services. This emphasises the need for better training of prison staff and implies a need for increased specialist psychiatric input. Similar recommendations were made in the "Three Colleges" report,[18] which is now being implemented. There is a need for improved liaison between psychiatric services and prisons. The level of severity of illness at which a prisoner requires transfer to hospital must be clarified, in local agreements.

This survey followed two initiatives designed to reduce the number of mentally ill prisoners on remand: the growth of court diversion schemes and an increased use of the Mental Health Act 1983 to transfer unsentenced prisoners to hospital as an emergency. From 1984 to 1994, the number of prisoners transferred annually under this provision increased from 47 to 535.[19] Despite these improvements, there are still substantial numbers of mentally disordered remanded prisoners. Extrapolating from the numbers of prisoners in our survey who required transfer, the number of NHS beds needed for the male remand population lies between 526 and 861. Half of this provision should be in medium security. It must be

Key messages

- Past neglect of unconvicted mentally ill prisoners has led to further violent offending after release
- We conducted a survey of the point prevalence of psychiatric disorder in men remanded in custody in England and Wales and assessed their treatment needs
- A diagnosis of psychiatric disorder was made in 63% of those surveyed, including 5% with psychosis
- Over half of these prisoners were judged to have an immediate treatment need—most could be treated inside prison, but 9% needed transfer to a psychiatric bed outside prison
- By extrapolation, the remand population probably contains about 680 men who need transfer to hospital for psychiatric treatment, including about 380 with serious mental illness
- Prison treatment facilities for unconvicted prisoners need substantial expansion

emphasised that the figure of 526 is a minimum. Our assessments were brief, and more detailed examination would probably reveal higher levels of morbidity.

In its strategy for health the government has identified mental illness as a priority,[20] and there is particular concern about mentally disordered offenders. Remand prisons contain an important pool of unmet need. On the grounds of humanity and public safety, it is unacceptable that mental disorder in this readily accessible group of offenders should go undetected or untreated.

We thank the prison staff, who made it possible to carry out the survey, and the prisoners themselves, who agreed to be interviewed at a time when their lives were in turmoil.

Funding: This work was commissioned by the Research and Planning Unit on behalf of the Directorate of Prison Health Care at the Home Office.

Conflict of interest: None.

1 Home Office. *Prison Statistics, England and Wales, 1993.* London: HMSO, 1995. (Cmnd 2893.)
2 Bowden P. Men remanded into custody for medical reports: the selection for treatment. *Br J Psychiatry* 1978;**132**:320-31.
3 Coid J. Mentally abnormal prisoners on remand: I—rejected or accepted by the NHS? *BMJ* 1988;**296**:1779-82.
4 Robertson G, Dell S, James K, Grounds A. Psychotic men remanded in custody to Brixton Prison. *Br J Psychiatry* 1994;**164**:55-61.
5 Dooley E. Prison suicide in England and Wales, 1972-87. *Br J Psychiatry* 1990;**156**:40-5.
6 Liebling A. *Suicides in prison.* London: Routledge, 1992: 42-3.
7 *The report of the independent panel of inquiry examining the case of Michael Buchanan.* London: North West London Mental Health NHS Trust, 1994.
8 Ritchie J, Dick D, Lingham R. *The report of the inquiry into the care and treatment of Christopher Clunis; presented to the chairman of North East Thames and South East Thames Regional Health Authorities.* London: HMSO, 1994.
9 Woodley L, Dixon K, Lindow V, Oyebode O, Sandford T, Simblet S. *The Woodley team report: report of the independent review panel to the East London and the City Health Authority and Newham Council, following a homicide in July 1994 by a person suffering with severe mental illness.* London: East London and the City Health Authority, 1995.
10 Gunn J, Maden A, Swinton M. Treatment needs of prisoners with psychiatric disorders. *BMJ* 1991;**303**:338-41.
11 Harding T, Zimmerman E. Psychiatric symptoms, cognitive stress and vulnerability factors. A study in a remand prison. *Br J Psychiatry* 1989; **155**:36-43.
12 Maden A, Taylor C, Brooke D, Gunn J. *Mental disorder in remand prisoners.* London: Home Office, Research and Statistics Directorate Information Section, 1996.
13 Ammons R, Ammons C. The quick test provisional manual. *Psychol Rep* 1962;**11**:111-61. (Monograph supplement I-VII.)
14 Endicott J, Spitzer R. A diagnostic interview—the schedule for affective disorders and schizophrenia. *Arch Gen Psychiatry* 1978;**35**:837-44.
15 Maden A, Gunn J. When does a prisoner become a patient? [editorial]. *Criminal Behaviour and Mental Health* 1993;**3**:iii-viii.
16 Meltzer H, Gill B, Petticrew M. *OPCS surveys of psychiatric morbidity. Bulletin 1: the prevalence of psychiatric morbidity among adults aged 16-64, living in private households, in Great Britain.* London: OPCS, 1994.
17 Teplin L. The prevalence of severe mental disorder among male urban jail detainees: comparison with the epidemiologic catchment area program. *Am J Public Health* 1990;**80**:663-9.
18 *The report of the working party of three medical royal colleges on the education and training of doctors in the health care service for prisoners.* London: Royal College of Physicians, Royal College of General Practitioners, Royal College of Psychiatrists, 1992.
19 *Statistics of mentally disordered offenders, England and Wales 1994. Home office statistical bulletin issue 20/95.* London: Research and Statistics Department, Home Office, 1995.
20 *The health of the nation: strategy for health in England.* London: HMSO, 1992.

(Accepted 15 November 1996)

Video assessment of simple respiratory signs

Mike English, Laura New, Norbert Peshu, Kevin Marsh

Clinical Research Centre, KEMRI Kilifi Unit, PO Box 428, Kilifi, Kenya
Mike English, *lecturer, Nuffield department of medicine, Oxford*
Laura New, *lecturer, Nuffield department of medicine, Oxford*
Norbert Peshu, *director*
Kevin Marsh, *honorary consultant, Nuffield department of medicine, Oxford*

Correspondence to:
Dr Mike English, 10 Beauchamp Lane, Oxford OX4 3LF

BMJ 1996;**313**:1527–8

Case management algorithms based on simple symptom histories and physical signs are seen as one means of reducing childhood mortality in developing countries. Simple respiratory signs, often accompanied by metabolic acidosis, are important indicators of potentially life threatening malaria.[1] Some are also characteristic of severe, acute respiratory infection.[2] It is usually assumed that clinicians share a common understanding of these simple signs. Differences in interpretation might, however, both contribute to the overlap apparent in published descriptions of these illnesses and in practice reduce the effectiveness of algorithms.

Methods and results

Twenty five video recordings of children (aged 3-50 months) admitted with acute respiratory infection or malaria to a hospital on the Kenyan coast were made with consent, compiled, and distributed to 30 clinicians for review. They included representatives from six different research units (see acknowledgements) and six government of Kenya clinical officers. A standard questionnaire giving details of the patients' ages and respiratory rates and asking for a "yes" or "no" response to the presence of the signs nasal flaring, indrawing, and deep (Kussmaul's) breathing was completed, independently, by each clinician. An answer of "don't know" could not be given but a record could be rejected on the basis of poor quality. No structured definition of the clinical signs was provided. No discussion of the records was allowed during viewing or between observers viewing at different sittings. All data were double entered and verified by using dBASE IV and analysed with SPSS.

Interobserver agreement was assessed with the κ statistic, a measure of how much better agreement is than expected if observers simply answer "yes" or "no" at random. Values for κ may vary from -1 to $+1$, with -1 indicating perfect disagreement, 0 the level of agreement expected by chance, and $+1$ perfect agreement; a κ value >0.6 suggests substantial agreement.[3] A κ value cannot be calculated if the number of "yes" or "no" responses given is 0. The consensus opinion of the reference centre was defined as agreement by at least 5 of the 6 observers for the presence or absence of a sign. The responses of individual clinicians not from the reference centre were compared with this consensus response and the proportion with a κ score ≥ 0.6 compared by the χ^2 test.

Of the 2250 individual assessments of simple clinical signs, in only seven (<0.5%) was video information judged inadequate. Although borderline records for which consensus was not achieved by the reference group were excluded from analysis (probably artificially raising absolute κ values), comparison of an individual's responses with the reference group's consensus response showed clear interobserver variability even for these "clearcut" records (fig 1). This was most noticeable for the sign deep breathing, when only 5/23