- 23 Takala AK, Eskola J, Nissinen A, Leinonen M, Pekkanen E, Makela PH. Effect of vaccination with Haemophilus influenzae type b (Hib) conjugate vaccine on the oropharyngeal carriage of Hib. In: *Programs and abstracts of the 30th interscience conference on antimicrobial agents and chemotherapy*. Atlanta, Georgia: American Society for Microbiology, 1990: 187. (Abstract 605.)
- 24 Ward JI, Fraser DW, Baraff LJ, Phikaytis BD. Haemophilus influenzae meningitis. A national study of secondary spread in household contacts. *N Engl J Med* 1979;301:122-6.
- 25 American Academy of Pediatrics Committee on Infectious Diseases. Revision of recommendations for use of rifampicin prophylaxis of contacts of patients with Haemophilus influenzae infection. *Pediatrics* 1984;74:301-2.
- 26 Cartwright KAV, Begg NT, Hull D. Chemoprophylaxis for secondary Haemophilus influenzae type b disease. *Communicable Disease Report* 1991;1:R2-6.
- 27 Hampton CM, Barenkamp SJ, Granoff DM. Comparison of outer membrane protein subtypes of Haemophilus influenzae type b isolates from healthy children in the general population and from diseased patients. *J Clin Microbiol* 1983;18:596-600.
- 28 Barenkamp SJ, Granoff DM, Pittman M. Outer membrane protein subtypes and biotypes of Haemophilus influenzae type b: relation between strains isolated in 1934-1954 and 1977-1980. *J Infect Dis* 1983;148:1127.
- 29 Gunn BA, Woodall JB, Jones JF, Thornsberry C. Ampicillin-resistant Haemophilus influenzae. *Lancet* 1974;ii:845.
- 30 Thomas WJ, McReynolds JW, Mock CR, Bailey DW. Ampicillin-resistant Haemophilus influenzae meningitis. *Lancet* 1974;ii:313.
- 31 Machka K, Braveny I, Dabernat H, et al. Distribution and resistance patterns of Haemophilus influenzae. A European cooperative study. *Eur J Clin Microbiol Infect Dis* 1988;7:14-24.
- 32 Del Rio MA, Chrane D, Shelton S, McCracken GH, Nelson JD. Ceftriaxone versus ampicillin and chloramphenicol for treatment of bacterial meningitis in children. *Lancet* 1983;ii:1241-4.

(Accepted 24 June 1991)

Deaths from Rh haemolytic disease in England and Wales in 1988 and 1989

Ruth M Hussey, Cyril A Clarke

University of Liverpool,
PO Box 147, Liverpool L69
3BX

Ruth M Hussey, MFCM,
senior lecturer, department of
public health
Sir Cyril A Clarke, FRS,
honorary Nuffield senior
research fellow, department of
genetics and microbiology

Correspondence to: Dr
Hussey.

BMJ 1991;303:445-6

Since 1977 deaths registered as due to haemolytic disease of the newborn in England and Wales have been analysed in an attempt to identify the circumstances in which the mother became isoimmunised and the effectiveness of anti-D prophylaxis. Information for the years 1977 to 1987 was published by Clarke and Mollison from the research unit of the Royal College of Physicians.¹ When the unit was reorganised in 1988 the work was transferred to the department of public health, University of Liverpool. We present the results for 1988 and 1989 together with data from earlier years.

Methods and results

Copies of all the certificates for stillbirths—that is, deaths after the 28th week of pregnancy—and neonatal deaths in England and Wales were sent to us by the Office of Population Censuses and Surveys. The case notes were then provided by the consultant obstetricians and, when necessary, further information given by general practitioners and regional blood transfusion centres. Details of the inquiry and the categorisation of cases have been reported.¹

The table shows that the rate of deaths due to haemolytic disease of the newborn has been declining steadily since the research started in 1977 but that in 1988 and 1989 the decline was more dramatic. Thus

the total number of cases notified in 1989 and confirmed as due to Rh haemolytic disease was only 10. We therefore checked with the Office of Population Censuses and Surveys that there had been no change in the way cases had been registered in recent years and that all the certificates had been sent to us, and this in fact was the case.

Comment

The low figures for deaths due to haemolytic disease of the newborn during 1988 and 1989 may have been due to chance. A more obvious explanation is improvement in obstetric care leading to fewer deaths, but against this there had been little change in the number of deaths due to antibodies other than D (for example, $\bar{c}$, E or K), though numbers were small. A contributory factor was the great reduction in category 1 cases, and it is now unusual for women not to receive anti-D immunoglobulin. When anti-D was first introduced in the 1970s it was common for it not to be given, particularly after termination of pregnancy. The reduction in category 2 cases may have been the result of increased use of antenatal anti-D, but we have no hard data on that point.

Interestingly, in the United States in 1987 the death rate from "haemolytic disease of the newborn due to isoimmunisation and other perinatal jaundice" was only 0.7/100 000 live births whereas in England and Wales the death rate was 18.4/100 000 live births in 1977 and 1.5/100 000 in 1989.²

A referee pointed out that in his region, although the death rates had decreased, new cases of anti-D sensitisation not resulting in death remained at a constant level, and we are investigating this in the Mersey region. Although it is important to continue to

Classification of deaths registered by Office of Population Censuses and Surveys as due to haemolytic disease of fetus or newborn, 1977-89

	Year												
Category	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
	Deaths due to anti-D*												
1a	53	40	40	31	14	17	4	1	5	8	1	3	2
1b	32	28	24	23	12	16	12	11	11	9	9	5	5
2	12	11	10	6	6	5	8	3	9	8	7	6	2
3	9	7	12	11	9	6	9	9	8	5	10	6	1
4	0	2	1	1	0	0	1	1	0	0	0	0	0
Total	106	88	87	72	41	44	34	25	33	30	27	20	10
Deaths/100 000 live births	18.4	14.6	13.5	10.9	6.4	7.0	5.4	3.9	5.0	4.5	3.9	2.9	1.5
	Haemolytic disease due to antibody other than anti-D (anti-c, anti-K, etc)												
5	4	3	3	4	3	4	4	5	4	4	0	4	3
	Deaths not due to haemolytic disease (that is, excluded after scrutiny of notes)												
6	45	49	21	27	13	19	17	19	15	18	8	7	10
Total deaths registered as due to haemolytic disease	155	140	111	103	57	67	55	49	52	52	35	31	23

*Category 1: mother believed to have been immunised by pregnancy after which she was not given injection of anti-Rh immunoglobulin (category 1a, immunising pregnancy occurred before 1970 (when anti-Rh immunoglobulin not widely available); category 1b, immunising pregnancy occurred from 1970 onwards); category 2: immunised during first pregnancy (anti-D detected during or within seven days after first pregnancy); category 3: immunised despite having been given anti-Rh immunoglobulin after one or more previous pregnancies (failure of prophylaxis); category 4: immunised against D by blood transfusion.

monitor the outcome of the Rh prophylaxis programme, the time may be right to investigate circumstances leading to cases of infants affected by Rh haemolytic disease rather than deaths. This is especially important if the death rate is falling while new cases are still occurring at the same rate. Computerised blood transfusion centres could provide information to interested clinicians about new cases occurring. This could be a topic for a regional obstetric audit group.

In summary, we think that the overall outlook for almost complete prevention of Rh haemolytic disease deaths is good. The introduction of monoclonal anti-D is on the horizon and, when it is readily available, will contribute to a reduction in new cases of sensitisation.³

We are grateful to Professor P L Mollison for advice on the classification of cases, and Professor Charles Rodeck and Dr L A D Tovey for commenting on the changing rates of death in 1988 and 1989. The Office of Population Censuses and Surveys kindly forwarded the death information and Mrs E Batty typed the manuscript. The work is supported by the Mersey Regional Research Committee.

- 1 Clarke CA, Mollison PL. Deaths from Rh haemolytic disease of the fetus and newborn, 1977-87. *J R Coll Physicians Lond* 1989;23:181-4.
- 2 US Department of Health, Education and Welfare, National Center for Health Statistics. *Vital statistics of the United States. Vol 2. Mortality, Part A.* Hyattsville, Maryland: DHEW, 1956-87.
- 3 Thomson A, Contreras M, Gorick B, Kumpel B, Chapman GE, Lane RS, et al. Clearance of Rh D-positive red cells with monoclonal anti-D. *Lancet* 1990;336:1147-50.

(Accepted 24 April 1991)

Portable medical record for the homeless mentally ill

James B Reuler, John R Balazs

Section of General Medicine, Department of Veterans Affairs Medical Center, Portland, Oregon, USA

James B Reuler, MD, associate professor

East London Homeless Health Project, London
John R Balazs, MRCP, general practitioner

Correspondence to:
Dr John Balazs, The Surgery, 1 Binfield Road, London SW4 6TB.

BMJ 1991;303:446

Among homeless people those who are chronically mentally ill pose challenges for health care delivery systems. With a high prevalence of repeated psychiatric admissions homeless mentally ill patients may see many health care providers who are unfamiliar with their past care. Information about the past history of homeless chronically mentally ill patients might help primary care providers institute more timely management. To test the hypothesis that a medical record carried by the patient might obviate some of the problems related to care for homeless mentally ill people the use of a patient held medical record was studied.

Methods and results

A portable record utilising pulpboard covers and Polyart 2 untearable paper was designed. Record dimensions were 13.5×8 cm. Homeless chronically mentally ill patients who were receiving care through the East London Homeless Health Project or residents of the Salvation Army Hoptown Hostel receiving on site care by a psychiatric nurse from the London Hospital, St Clement's, were recruited between April 1988 and April 1989. Once identified as a study subject the patient had his or her regular medical record flagged to indicate study participation and was given a portable record containing personal and medical information. On return visits the patient was asked questions about the portable record and, when available, the record itself was reviewed by the provider. The study was approved by the Tower Hamlets District ethics committee.

Of 61 patients asked to participate, 41 agreed. Follow up information was available for 28 of these 41 subjects (17 women, 11 men; average age 41.3 years). Schizophrenia was the primary diagnosis in 28 cases. Thirty patients were currently receiving medication for psychiatric disorders, and 25 stated that they were registered with a general practitioner in London.

Twenty eight patients with at least one follow up visit accounted for a total of 67 follow up interviews. At only five of the 28 follow up visits for women, as compared with 24 of the 39 for men, was the record available for review. The most common reason given for failing to bring the chart to the visit was that the patient had forgotten or that it had been stolen. At 33 follow up visits the patient reported that another provider had been seen, including general practitioners, accident and emergency room staff, psychiatrists, lawyers, police, social workers, and district nurses. In 26 instances the

patients stated that the portable record had been given to the other provider. Of the 28 patients with follow up visits, all but three had read the portable record and only one expressed anger after reviewing the information. Review of the records at follow up visits showed that there was new information recorded in eight. Two records were returned by mail.

Comment

Recent recommendations of an advocacy group for homeless people included a statement that they should carry a copy of a modified medical record.¹ Although the concept of a medical record carried by the patient is not new,² there are no reports of its use among homeless people.

The results of our study of a portable medical record for a subgroup of the homeless population are limited because only 28 (68%) of the subjects enrolled were seen for follow up. Nevertheless, several conclusions can be drawn. Firstly, this pilot project shows that having a patient held medical record is feasible for homeless people. Patients who were seen at follow up demonstrated the ability to carry this small record, and several patients who failed to bring the portable medical record to follow up visits acknowledged that it was still in their possession. It is reasonable to expect that homeless patients who are not chronically mentally ill will have a higher compliance rate with the use of a portable record.

Secondly, the utility of the portable record was confirmed: it was presented to other types of providers, who received a certain amount of basic information and a contact for future coordination of care. Several portable records contained entries by some of these providers which included new information not previously available.

Finally, this group of mentally ill patients found pleasure in reading their medical records. Greatest concern about patient access to medical records has centred on psychiatric patients,³ but studies of their response to record review have not shown adverse effects.^{4,5} Our findings suggest that a patient held medical record for homeless chronically mentally ill people could be used safely.

- 1 Health Sub-Group, Joint Working Party on Single Homelessness in London. *Primary health care for homeless single people in London: a strategic approach.* London: SHIL Health Sub-Group, 1987.
- 2 Baldry M, Cheal C, Fisher B, Gillett M, Huet V. Giving patients their own records in general practice: experience of patients and staff. *BMJ* 1986;292:596-8.
- 3 Priest RG. Data Protection Act: subject access to personal health information (DA8523): DHSS consultation paper. *Bulletin of the Royal College of Psychiatrists* 1986;10:185.
- 4 Roth LH, Wolford J, Meisel A. Patient access to records: tonic or toxin? *Am J Psychiatry* 1980;137:592-6.
- 5 Parrott J, Strathdee G, Brown P. Patient access to psychiatric records: the patient's view. *J R Soc Med* 1988;81:520-2.

(Accepted 10 May 1991)