

or in other studies conducted at the Mayo Clinic Alzheimer's Disease Research Center.

From each MRI scan, we used an automated system to reconstruct a three-dimensional computer model of the participant's face and create 10 two-dimensional photograph-like images with random lighting and views of each person (Fig. 1B). We tested publicly available automated face-recognition software (Microsoft Azure), which attempts to match a photograph of a face to a user-defined set of possible faces. We used the MRI-derived images to define a set of 84 possible faces to be recognized by the software, and we used the five actual photographs of each person as the photographs to be matched. For each photograph, the software returned a ranked list of the 50 closest matches from the set of 84 MRI-derived faces, with a confidence score for each. We summed these scores across each participant's five photos to obtain a ranked list of matches for their set of photographs (a full description of our methods is provided in the Supplementary Appendix, available with the full text of this letter at NEJM.org).

For 70 of the 84 participants (83%), the software chose the correct MRI scan as the most likely match for their photos. The correct MRI scan was among the top five choices for 80 of 84 participants (95%).

In previous studies, 40% of human visual raters could match MRI face reconstructions to photographs with greater-than-chance success rates,¹ and automated face-recognition software developed in 2008 could match 27.5% of computed tomography–based face reconstructions to the correct photographs.² The 83% match rate in our study suggests that face recognition provides a possible means of reidentifying research participants from their cranial MRIs.

The current standard of removing only meta-data in medical images may be insufficient to

prevent reidentification of participants in research. Existing software for the removal or blurring of faces in medical images is rarely used,³ because these methods can reduce the quality of gray matter volume and cortical thickness measurements⁴ and may still not fully prevent reidentification.⁵ Further research is needed to develop improved deidentification methods for medical imaging that contains facial features.

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Transfusion Timing and Volume in African Children with Severe Anemia

TO THE EDITOR: In two articles, Maitland et al. (Aug. 1 issue) report the findings of the TRACT (Transfusion and Treatment of Severe Anemia in African Children) trial, in which they evaluated both the timing of transfusion administration¹

and transfusion volume² in children between the ages of 2 months and 2 years with uncomplicated severe anemia. The children in the trials had a history of fever during the illness that brought them to the hospital, and more than 60% had

evidence of malaria. Thus, treatment with anti-malarial agents could have affected the results of these trials.

Since immediate transfusion seemed to be beneficial in febrile patients and malaria-negative patients,¹ a cross-tabulation analysis for co-occurrence of fever and malaria would be required. In the transfusion-volume trial,² in which the investigators compared two transfusion volumes (20 ml per kilogram of body weight vs. 30 ml per kilogram), among the 39% of children with fever at the time of screening, mortality was higher with the 30-ml volume than with the 20-ml volume. This finding suggests that higher-volume blood transfusion would not benefit children with anemia without proper treatment also being provided for infections other than malaria.

The use of pathogen-inactivation techniques would be reasonable for reducing transfusion-transmitted malaria, given the high prevalence of malaria, the high dependency on blood donated by family and friends, and the spread of drug-resistant malaria in the sub-Saharan area. Also helpful would be high-sensitivity malaria screening and establishment of a voluntary registry system for blood donors.³ In addition, according to the guidelines for red-cell transfusion in children,⁴ a whole-blood transfusion of 20 ml per kilogram can increase the hemoglobin level by 2 g per deciliter, which supports the recommendations of the World Health Organization.⁵ Taken together, these two articles suggest the importance of treating underlying diseases in children with severe anemia.

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THE AUTHORS REPLY: At screening, all the children in the TRACT trial were tested for malaria by means of rapid diagnostic tests and were then treated if the results were positive. In the two trials, we found no evidence that *Plasmodium falciparum* malaria affected the relative difference in 28-day mortality (the primary end point in both trials) between immediate transfusion and no immediate transfusion ($P=0.18$ for heterogeneity) or between transfusion with 30 ml per kilogram or 20 ml per kilogram ($P=0.13$ for heterogeneity). (Details are provided in Fig. S7 and Fig. S4 of the Supplementary Appendixes accompanying the respective articles.)

Furthermore, malaria positivity did not explain the strong interaction between fever at screening and the effect of the transfusion volume of 30 ml per kilogram on 28-day mortality. Among the children without fever, estimates of benefits regarding mortality at 28 days for the volume of 30 ml per kilogram, as compared with the volume of 20 ml per kilogram, were similar in those with malaria (hazard ratio, 0.66; 95% confidence interval [CI], 0.36 to 1.21) and in those without malaria (hazard ratio, 0.24; 95% CI, 0.10 to 0.53). Among the children with fever, estimates of harms regarding mortality at 28 days were also similar in those with malaria (hazard ratio, 1.99; 95% CI, 0.85 to 4.66) and in those without malaria (hazard ratio, 1.77; 95% CI, 0.75 to 4.18). Finally, in malaria-endemic regions, blood donors (predominantly adults and older children) are largely immune to malaria, so the prevalence of malaria among donors is low (<1.5%).¹ Consequently, the use of costly pathogen-inactivation techniques and high-sensitivity malaria screening is unlikely to add benefit.

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Since publication of their articles, the authors report no further potential conflict of interest.

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Rituximab or Cyclosporine for Membranous Nephropathy

TO THE EDITOR: Fervenza et al. (July 4 issue)¹ report that rituximab was noninferior to cyclosporine in inducing remission of membranous nephropathy. Although their trial results support potential benefits of B-cell depletion in patients with membranous nephropathy, the trial highlights the limitations of rituximab or cyclosporine monotherapy. First, the percentages of patients with proteinuria remission were unexpectedly low and the incidence of relapse was high with cyclosporine; second, the antiproteinuric effects of rituximab were comparatively delayed but were of longer duration than with cyclosporine. At 24 months, complete remission occurred in only 35% of the patients receiving rituximab, and immunologic responses occurred in only 66%.

To examine whether combination therapy with cyclosporine and rituximab would result in a higher percentage of patients having complete remission as well as in more durable complete remission, we initiated a pilot trial combining rituximab plus cyclosporine. Our published preliminary results² showed substantially higher percentages of patients with complete remission and immunologic response than were seen with

either single agent in the trial conducted by Fervenza et al., as well as more rapid onset of proteinuria remissions. Here, we offer additional data on 21 patients that extend the published results (Table 1). The suggestive advantage of this combination rituximab and cyclosporine regimen will need validation in a future prospective, randomized trial.

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Table 1. Complete Remission and Immunologic Response with Cyclosporine or Rituximab Monotherapy as Compared with Combination Therapy.*

Agent	Complete Remission			Immunologic Response
	At 6 Mo	At 12 Mo	At 24 Mo	At 24 Mo
	<i>percent of patients</i>			
Cyclosporine alone	2	5	0	13
Rituximab alone	0	14	35	66
Rituximab plus cyclosporine	19	52	57	82

* Data on monotherapy are from the trial conducted by Fervenza et al. (involving 65 patients in the rituximab group and 65 in the cyclosporine group), and data on combination therapy are from the study conducted by Waldman et al. (involving 21 patients).²

TO THE EDITOR: Fervenza et al. report that rituximab was superior to cyclosporine in maintaining proteinuria remission at 24 months. However, the indications and the use of cyclosporine in this trial could be challenged. Patients with chronic kidney disease and an estimated glomerular filtration rate (GFR) of 40 ml per minute or higher were enrolled in the trial. Thus, a number of patients who were assigned to receive cyclosporine were at high risk for reduction in the actual GFR, since a previous randomized trial warned that cyclosporine use should be avoided in patients with deteriorating renal function.¹

At 12 months, there was no significant difference in the incidence of remission between the rituximab group (60%) and the cyclosporine group (52%), but cyclosporine was discontinued 2 months later in spite of evidence that protein-