

years ago. It is possible, then, that suggestions that are more challenging to entrenched interests should be entertained.

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**TO THE EDITOR:** Mongan et al. list 12 options for reducing health care spending. I would like to point out two options that they seem to have overlooked. The first option is to increase the ratio of primary care physicians to specialists. Numerous studies have shown that as the ratio increases, costs decline.<sup>1</sup> The second option is to eliminate the ever-growing administrative restrictions in managed care that markedly reduce the efficiency of primary care practices — especially including prior authorization for referrals, medications, and imaging procedures. These needless restrictions waste the time of physicians and their staffs, considerably increase overhead, and lower morale. Primary care physicians have every desire to practice cost-effective, evidence-based medicine and are well trained to do so. A high degree of self-regulation must be restored in order to promote and maintain professionalism. Otherwise, the first option listed above cannot be achieved.

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**TO THE EDITOR:** Mongan et al. discuss many options for slowing the growth of health care costs. However, the authors do not bring up the taboo subject that we physicians are a significant cause of high health care costs. The greatest cost-saving option, in my opinion, is changing the outlook and ordering habits of physicians. We need to be reasonable about our treatments and expectations. We should not be like sheep, writing prescriptions for the latest recommendation from the drug-company representative or paid speaker; instead, we need to look critically at new information and seek the most economical treatment for our patients' problems.

The entities that own the gold (government and insurance companies) can obviously make the rules, but the entities spending the gold (us) can have the greatest impact on how fast and where it is spent. I realize that many of our habits result from rules made by the paying entities, but still, our physician community needs a period of serious self-examination.

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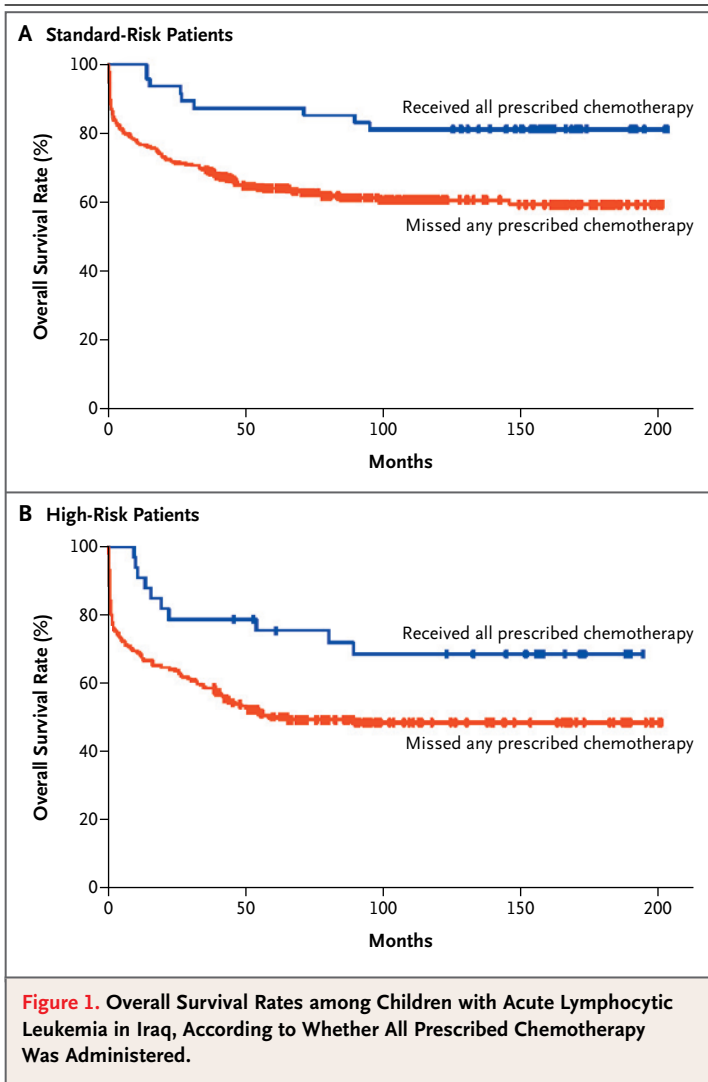
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## Shortage of Chemotherapeutic Agents in Iraq and Outcome of Childhood Acute Lymphocytic Leukemia, 1990–2002

**TO THE EDITOR:** The United Nations (UN) imposed economic sanctions against Iraq in 1990, after the invasion of Kuwait, which remained in effect until 2003. During the sanctions, there was a widespread shortage of medications, including antibiotics and chemotherapeutic agents, and basic services.<sup>1,2</sup> We sought to determine the effect of the shortage of chemotherapeutic agents on the outcome of acute lymphocytic leukemia (ALL) in Iraqi children during the period of UN sanctions.

A total of 651 children with ALL who were

treated at the Children's Welfare Teaching Hospital in Baghdad and who had complete medical records were included in this analysis. There were 408 patients with standard-risk disease, with a median age of 4.9 years (range, 1.1 to 9.8) and a median white-cell count at presentation of 9050 per cubic millimeter (range, 400 to 47,000). The remaining 243 patients were at high risk and had a median age of 8 years (range, 1.3 to 15.0) and a median white-cell count at presentation of 78,600 per cubic millimeter (range, 800 to 600,000). All children were treated according to



the UKALL X and XI protocols (between 1990 and 1997) and the Medical Research Council ALL 97 protocol (between 1998 and 2002).<sup>3,4</sup> Medication shortage was defined as no treatment or incomplete treatment owing to unavailability of chemotherapeutic agents. The absence of chemotherapy administration or decreased or delayed administration due to toxic effects or myelosuppression was not considered to be a medication shortage.

The shortage of chemotherapeutic agents was evident from the increase in the proportion of the 651 patients who received less than 50% of the prescribed chemotherapy: 20.1% between

1990 and 1994 to 54.3% between 2000 and 2002. With a median follow-up period of 8.4 years (range, 3.5 to 16.9), the overall survival rate for patients who received all prescribed chemotherapy was significantly greater than that for patients who missed any chemotherapy ( $P < 0.001$ ). This difference was also significant within the standard-risk group ( $P = 0.004$ ) and within the high-risk group ( $P = 0.02$ ) (Fig. 1). In a multivariate analysis of the data (including age, white-cell count at presentation, hemoglobin level, presence or absence of organomegaly, and year of treatment), as compared with receipt of all chemotherapy, missed chemotherapy was associated with a significantly worse outcome within the standard-risk group (relative risk, 2.90, 95% confidence interval [CI], 1.41 to 6.22;  $P = 0.005$ ) and within the high-risk group (relative risk, 2.55; 95% CI, 1.29 to 5.18;  $P = 0.008$ ). Relapse was the most common cause of treatment failure, occurring in 217 of the 651 patients (33.3%). There was a significant inverse relationship between the amount of prescribed chemotherapy that was administered and the risk of relapse (relative risk, 0.96, 95% CI, 0.93 to 0.99;  $P = 0.01$ ) (i.e., the more prescribed chemotherapy received, the lower the risk of relapse).

Despite the lack of flow cytometry, cytogenetic evaluation, and aggressive supportive care, the outcomes for children who could receive all their prescribed chemotherapy were similar to those found in developed countries.<sup>3</sup> Our findings reinforce the concept that the most important factor in improving survival, even in children with leukemia, is adequate treatment.

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