(80 percent of violent hospital incidents take place during the first three months, according to the researchers), Convit and his colleagues were correct in predicting violent behavior in 52 of the cases; the results included 19 false positives.

These results are striking, Convit says, particularly since psychiatrists have historically been right in violence prediction only 25 percent of the time; and the majority of those errors have been false positives. And of the few studies that have yielded statistics comparable to NYU's, he says, none has done so with just four predictive variables – a great advantage in applying it to many people at a small cost. In addition, built into the NYU studies was a complex "odds ratio" factor, which takes into account the relative risk of a population – something lacking in many other studies, Convit says. There is a long way to go, says Convit, before psychiatrists can achieve the same degree of accuracy in predicting the actions of a released patient. But these studies, he says, show that "prediction of violence on a psychiatric ward can be done."

– J. Greenberg

New benefits seen in vitamin A therapy

Severe vitamin A deficiency can lead to xerophthalmia (dry-eye disease), a leading cause of blindness among children in the developing world. To combat this, world health groups have for years been bringing low-cost eye exams and vitamin A supplements to malnourished regions. But new research indicates that blindness is not this deficiency's only major threat. Even those whose deficiency is not severe enough to cause blindness appear to be at increased risk of infection – a leading childhood killer in developing nations. A new test to diagnose the deficiency, along with dramatic increases in child survival where vitamin A therapy was tried, were reported last week at a congressional hearing.

Unpublished Indonesian field studies of the new eye test indicate that "five to 10 times as many children as previously believed may be suffering ill-effects of vitamin A deficiency – an estimated 25 to 50 million children every year," says Alfred Sommer, director of the Dana Center of the Wilmer Eye Institute at Johns Hopkins University in Baltimore. Sources of vitamin A include dairy products, carrots and leafy vegetables.

The test, which Sommer helped develop, involves pressing a small strip of filter paper against the white of the eye. If there are mucus-producing goblet cells on the eye's surface, some will adhere to the paper and show up when a stain is applied. The absence of such cells is not only the first symptom of developing xerophthalmia, but also an indicator of otherwise unapparent vitamin A deficiency, explains Keith P. West Jr., a Johns Hopkins nutritionist and collaborator of Sommer's.

In Sumatra, Sommer, West and Indonesian colleagues achieved striking reductions in childhood mortality through once-every-six-months administration of a high-dose vitamin A capsule. Their study, to be published next month in the AMERICAN JOURNAL OF CLINICAL NUTRITION, involved roughly 26,000 children under age 5 – half of whom received no capsules and half of whom were directed to get supplements. (Any with dry-eye disease were excluded from the analysis.)

When the researchers compared mortality among children who received the supplement with that of children in the control villages, they found "an astounding 70 percent reduction in mortality" attributable to the vitamin therapy, Sommer reports.

Two related studies offer clues as to why the supplement affected mortality. One, published by Sommer and two colleagues in Tanzania in the Jan. 31 BRITISH MEDICAL JOURNAL, showed that among African children hospitalized with measles – a leading childhood killer in developing countries – the death rate can be halved by prescribing two high-dose vitamin A capsules in addition to standard medical care. Measles is known to deplete body reserves of vitamin A. This, the authors explain, "presumably reduc[es] the [body's] ability to resist secondary infections or their consequences, or both."

Last year, researchers at the University of Adelaide and Adelaide Children's Hospital in Australia reported that smaller supplements – equivalent to eating an extra half-carrot daily – reduce by 20 percent the number of acute respiratory infections contracted by allergic or respiratory-illness-prone children. Since the Australian preschoolers ate diets that contained – even before supplementation – what should have been sufficient vitamin A, the study suggests that a history of acute infection may increase one's need for the vitamin.

Vitamin A therapy "is inexpensive" and "may very well have the potential to reduce child mortality on an astounding scale," says Rep. Tony P. Hall (D-Ohio), who last week chaired a hearing of the House Select Committee on Hunger, where many of these findings were reported. Hall is heading efforts to increase U.S. funding for vitamin A supplementation in developing countries – from $6 million this year, to $8 million in the coming fiscal year.

– J. Raloff

Highs and woes of runners' hormones

Runners who train more than 45 miles each week apparently have chronically elevated amounts of certain stress hormones – and therefore potentially harmful blood hormone profiles that are similar to those seen in patients with depression or anorexia, say scientists.

Researchers in Bethesda, Md., at the National Institute of Child Health and Human Development (NICHD), the Uniformed Services University of the Health Sciences and the National Institute of Mental Health found that certain runners maintained unusually high blood levels of adrenocorticotropic hormone (ACTH) and cortisol, hormones that help the body adapt to stress. Data came from comparing subjects who did not exercise regularly to two groups of runners: one moderately trained by running 15 to 25 miles per week, the other highly trained at more than 45 miles per week. Blood samples were drawn from the 21 subjects – all men – during treadmill exercise, as well as at other times during the day.

While all three groups had elevated ACTH and cortisol levels during intense exercise, the levels in the highly trained group persisted at roughly 40 percent above those in the other groups. In a report in the May 21 NEW ENGLAND JOURNAL OF MEDICINE, the scientists say the reason for the exercise-dependent, chronic hormone elevation is unclear and may represent either "an adaptive change to the daily stress of strenuous exercise or a marker of a specific personality profile."

Although the hormonal similarities to depression and anorexia nervosa are intriguing, their significance remains a mystery. "This [study] opened a lot of new questions [about exercise and stress] we hadn't thought of before," coauthor George P. Chrousos of NICHD said in an interview. "The data will come, but we need more prospective studies where we follow the athletes through training. Until that time, we won't know for sure." He says a psychological study of 50 "compulsive athletes" is under way.

Whatever the cause, the hormones involved serve multiple functions in the body, and findings from the study may have broad implications, says Chrousos. He says elevated levels could be related to mild suppression of the immune system, because cortisol has been suspected for years of causing immunosuppression. Also, it could explain the reproductive-system problems seen in young athletes – male as well as female – undergoing endurance training. Moderation, say the authors, may be the best, since what "would be beneficial in the short term may be detrimental . . . over prolonged periods."

– D.D. Edwards