

SCIENCE NEWS of the week

Encouraging Signs for Commitment Laws

In the past 20 years, legislators have altered most state laws governing the involuntary commitment of people diagnosed as mentally ill, stressing "dangerousness" rather than a "need for treatment." Many psychiatrists say these laws encourage the hospitalization of people who are dangerous but not mentally ill, while the truly ill, in one critic's words, "die with their rights on." But three studies of commitment decisions in public psychiatric emergency rooms in California, reported in the August ARCHIVES OF GENERAL PSYCHIATRY, suggest the commitment process is working better than critics have assumed.

Steven P. Segal of the University of California, Berkeley, and his colleagues came up with three findings in their three studies. First, they report, emergency room clinicians — who initially decide who should be referred for commitment — apply a consistent set of rules to determine someone's "dangerousness." Second, patients deemed most dangerous are also seen as the most severely mentally ill. Finally, patients who are actually committed are more dangerous, more mentally ill and more impulsive than those who are released.

The studies provide important reassurance that violent people with no mental disorders are not being dumped in mental hospitals, says psychiatrist and lawyer Mark J. Mills of the University of California, Los Angeles. "The issue of who should be committed, and by what standards, continues unresolved," writes Mills in an accompanying editorial.

Most state commitment laws specify that patients may be involuntarily admitted to a hospital only on grounds of danger to self, danger to others or grave disability. The latter term refers to the inability, due to mental disorder, to provide for basic personal needs of food, clothing or shelter.

Segal and his co-workers measured these concepts with three specially designed checklists filled out by 70 clinicians (including psychiatrists, nurses and social workers) for 251 emergency room cases. An independent social worker also completed the checklist for each case. The five psychiatric facilities in the studies are located in both rural and urban settings.

Clinicians and independent observers showed substantial agreement on the types of behavior indicating dangerousness, say the researchers. Mills notes, however, that it is not known if people dubbed "dangerous" in an emergency room are the most likely to engage in violence in the community.

The psychiatric symptom most closely

tied to ratings of severe dangerousness was impulsivity, marked by the pursuit of immediate gratification and an inability to choose and work toward long-term goals. Among the 71 patients with no previous hospitalizations, impulsivity was more influential than dangerousness in clinicians' decisions for commitment, explain the investigators. Overall, they conclude, those patients selected for involuntary commitment are both the most dangerous and the most severely mentally ill.

"These findings should serve as a calming influence for those who think involuntary commitment is being misused," says psychiatrist Robert Miller of the University of Wisconsin in Madison. But there are tremendous differences

from state to state, and even from court to court, in how virtually identical commitment laws are implemented, adds Miller. In addition, social influences, such as widely publicized murders, have sparked sudden jumps in involuntary admissions under the same commitment statutes.

Miller supports a "model commitment law" endorsed by the American Psychiatric Association. This alternative approach focuses on the presence of a severe, treatable mental disorder and a patient's incompetence to make treatment decisions as key criteria for involuntary commitment. There is evidence, he says, that fewer patients would qualify for commitment under these standards than under "dangerousness" standards.

— B. Bower

Waste wells implicated in Ohio quake

By injecting industrial waste into the ground, a chemical company in Ohio may have generated enough subsurface pressure to trigger the magnitude 4.9 earthquake that shook northeastern Ohio and a nearby nuclear power plant in early 1986, two Ohio geologists report. Although their conclusions differ from the findings of federal geologists, they highlight the questions some scientists are raising concerning the relationship between earthquakes and injection wells, which are used heavily in waste disposal and in the oil and gas industry.

Since 1974, the Calhio Division of Stauffer Chemical Co. has pumped liquid waste into a porous sandstone formation through two 1,800-meter-deep wells near Lake Erie. On Jan. 31, 1986, an earthquake struck 12 kilometers from the wells. After studying the quake and constructing a computer model of the underground flow patterns, two U.S. Geological Survey researchers concluded that natural forces — not waste injection — generated the quake.

Moid Ahmad and Jeffrey A. Smith from Ohio University in Athens report in the August GEOLOGY that their computer simulations suggest otherwise.

By pumping waste into the sandstone, the Calhio wells are increasing fluid pressure within the pores of this rock, which lies directly above the crystalline bedrock. Geologists suspect the 1986 earthquake occurred along a fault in the bedrock, although they cannot be sure because it is covered by several kilometers of sedimentary rock.

Ahmad and Smith found that during computer simulations, the increased

fluid pressure from the well spreads 12 km away into the proposed fault — to an extent that the pressure could have triggered the 1986 quake by reducing friction along the fault. Ahmad told SCIENCE NEWS that continuing waste injection could set off a larger earthquake that might threaten the proximal Perry Nuclear Power Plant.

Experts say they have little information about the subsurface rocks in the area, and for that reason they cannot rule out the possibility of a triggered quake. "I think it's possible that the earthquake was triggered and it's possible that more earthquakes could be triggered," says John Armbruster of the Lamont-Doherty Geological Observatory in Palisades, N.Y.

However, the lack of detailed information undermines the reliability of any computer model, and most Ohio earth scientists reject alarmist statements about future hazard. "Ahmad seems to be out on his own on this one," says Larry Wickstrom of the Ohio Geological Survey in Columbus. Still, geologists believe they need to monitor seismicity in the area and study the actual subsurface flow patterns.

Last year a magnitude 3.6 quake hit 700 meters from an injection well in Ashtabula, Ohio. On the basis of information from seismic monitoring stations set up after the 1986 quake, Armbruster has linked the later quake to the Ashtabula well — a conclusion shared by the Ohio Geological Survey. There are only a handful of other instances for which geologists have found a clear connection between injection wells and quakes. — R. Monastersky