Communications technology among tools needed to aid miner safety

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A new National Academy of Sciences report identifies tools that would help miners devise their own means of escape when trapped underground.

In part, the report suggests that The National Institute of Occupational Safety and Health (NIOSH) and the Mine Safety and Health Administration (MSHA) work closely with technology companies to develop new communications and tracking devices—ones that keep working underground after a mining accident.

It also suggests that NIOSH and MSHA work with mining companies to enable frequent escape drills and extensive training with safety equipment.

The report offers the first comprehensive examination of all the diverse factors that affect mining safety, said William Marras, professor and Honda Endowed Chair in the Department of Integrated Systems Engineering at The Ohio State University and chair of the report committee.

"All these factors have been reviewed before, but only in isolation. On the committee, we realized that the problem is that all these things are connected. So we analyzed each one to find out how they fit together," Marras said.

For instance, when the air in a mine is contaminated with smoke or

chemicals, miners are supposed to wear a portable air supply. But the standard design requires them to bite down on a mouthpiece to breathe, so they can't talk.

"In an emergency situation, miners need to gather as much information as they can, as fast as they can. Sharing information is especially important, and you can't do that if you're wearing this mouthpiece," he said.

The committee suggested that researchers develop breathing devices that don't inhibit speech, as well as easy-to-use electronic communicators that double as way-finders to help miners navigate to the safest exit—along with training to make using these devices second-nature in case of emergency.

More information: The complete report, Improving Self-Escape from Underground Coal Mines, is available online from The National Academies Press at www.nap.edu/catalog.php?record_id=18300

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