The state of Michigan, which used a 5-step checklist to virtually eliminate central-line bloodstream infections in ICUs, has been able to keep the number near zero for 3 years.

Peter Pronovost, MD, PhD, a patient safety expert at Johns Hopkins University School of Medicine who developed the checklist, says the Michigan project has significantly changed the way clinicians think about these infections.

“Prior to our work, we thought these were largely inevitable infections and were simply a cost of being in the hospital,” says Dr Pronovost, who reported on the project in the February 20, 2010, *British Medical Journal.*

“Now we know they are universally preventable. We’ve reset the benchmark.”

The study covered more than 100 ICUs in Michigan.

**Complete culture change**

Sustainability of the kind seen in Michigan requires a “complete culture change” that goes well beyond checklists, he says.

Culture change means a work environment in which “nurses question doctors who don’t wash their hands or use the checklist diligently,” he notes. “It means clinicians no longer thinking central-line infections are inevitable.

“They now believe these infections are preventable, and they are creating a culture where they are.”

He says the report is one of the first large studies to demonstrate that quality improvement results can be sustained.

The checklist has 5 basic steps for clinicians to follow when placing a central-line catheter:

• wash hands
• clean a patient’s skin with chlorhexidine
• wear a mask, hat, gown, and gloves and put sterile drapes over the patient
• avoid placing a catheter in the groin where infection rates are higher
• remove the catheter as soon as possible, even if there’s a chance it might be needed again.

In addition to the checklist, the program included training physicians and nurses about infection control and using standardized supply carts.

The safety plan required “stop now” orders any member of the team could invoke when a checklist is not followed as well as feedback to clinicians about rates of catheter-related infections.

Before the Michigan project, the median rate of central-line infections...
was about 3 per 1,000 catheter-hours, above the national average. After 18 months, most Michigan ICUs reported no infections.

**Project goes worldwide**

Dr Pronovost and his team are taking the checklist system into all 50 states and worldwide.

“The use of checklists is not the endgame. Reduced infection rates are,” Pronovost says. “The public wants to know: Am I going to get infected? If hospitals had to make these rates public, these infections would end.”

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**Reference**