To estimate the cost-effectiveness of safety-engineered devices (SEDs) relative to non-SEDs for winged steel needles, intravenous catheter stylets, suture needles, and insulin pen needles" Fukuda and Moriwaki (2016).

Abstract:

OBJECTIVE: To estimate the cost-effectiveness of safety-engineered devices (SEDs) relative to non-SEDs for winged steel needles, intravenous catheter stylets, suture needles, and insulin pen needles.

DESIGN: Decision analysis modeling.

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PARTICIPANTS: Hypothetical cohort of healthcare workers who utilized needle devices.

METHODS: We developed a decision-analytic model to estimate and compare the life-cycle costs and benefits for SED and non-SED needle devices. For this cost-effectiveness analysis, we quantified the total direct medical cost per needlestick injury, number of needlestick injuries avoided, and incremental cost-effectiveness ratio. Sensitivity analyses were performed to examine the robustness of the base-case analysis.

RESULTS: In the base-case analysis, we calculated the incremental cost-effectiveness ratios of SED winged steel needles, intravenous catheter stylets, suture needles, and insulin pen needles to be $2,633, $13,943, $1,792, and $1,269 per needlestick injury avoided, respectively. Sensitivity analyses showed that the calculated incremental cost-effectiveness ratio values for using SEDs did not fall below zero even after adjusting the values of each parameter.

CONCLUSION: The use of SED needle devices would not produce cost savings for hospitals. Government intervention may be needed to systematically protect healthcare workers in Japan from the risk of bloodborne pathogen infections.

Reference:

Fukuda, H. and Moriwaki, K. (2016) Cost-Effectiveness Analysis of Safety-Engineered Devices. Infection Control and Hospital Epidemiology. May 26th. .

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