The Rise of Reusables: A Literature Review

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The move from disposable to reusable sharps containers (RSC) has been meteoric. In US and Ontario, market share has risen from less than 5% in 2002 to over 40% in 2010. The reasons: safety, ecology and cost.

Developed simultaneously in 1986 in Australia and USA, RSC are required to have non-manual processes for opening, decanting and sanitising (and contents disposed of in accord with regulations). There are several commercial RSC available but not all meet the sharp container standards of various countries worldwide.

How do RSC Effect Sustainability?

Waste Reduction. All RSC are able to be used numerous times, some up to 500 uses. Their adoption results in an immediate and sustained reduction in plastic discarded by healthcare facilities (HCF). In addition, cardboard packaging is eliminated (RSC are delivered in reusable transporters). Two large US studies of one collector, state that per 100 occupied beds (OB), HCF will cease purchasing and disposing of between 4,500 and 6,000 disposable containers annually – a reduction of 4 to 6 tonnes of plastic and cardboard per 100 OB.[1,2]

Carbon Emission Reduction. Three US and UK "cradle to grave" life-cycle assessments comparing one brand of RSC against disposables have been presented in 2010.[3,4,5] Over 10 years, the RSC saved each HCF at least 1,800 tonnes of CO_2 equivalents and reduced CO_2 emissions more than 85% – markedly exceeding targets set by Canada, US and UK for 2020.

A differentiating factor is that RSC with enhanced engineering protect HCW 24/7. Brands needing early removal to prevent SI require more frequent transport, thus generating higher CO_2 emissions.

Is There a Risk of Pathogen Transmission?

Historically, no. The question of transmission potential was raised in two papers but disease transmission was either not sought or not proven.[6,7] Close to 100 million RSC have been used internationally and in no instance have they been cited as a cause of infection – the risk of transmission is calculated at less than 1 in 100 billion.[8]

Can RSC Reduce Sharps Injuries?

Not all RSC have been proven to reduce sharps injuries (SI). In four international studies, one RSC designed using extensive human factor engineering (HFE) to design safer containers has averaged a significant 69% reduction in disposal-related SI.[3,9-11] Sharps containers generally have 3-4 parts (base, lid, door/catch, etc) – the RSC cited above has some 26 parts and the significant SI reductions reflect its HFE design. The US FDA states most use-errors with medical devices are due to device design, which needs accommodate a wider spectrum of user-behaviour.

Can RSC Reduce Costs?

In most hospitals RSC reduce sharps containment costs – a recent UK RSC paper stated, "You can have it all: Prevent sharps injuries, Save money and Reduce CO_2!"[3] ghc

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