Australian Government

Department of Health and Ageing

Australia and New Zealand Horizon Scanning Network

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AN INITIATIVE OF THE NATIONAL, STATE AND TERRITORY GOVERNMENTS OF AUSTRALIA AND THE GOVERNMENT OF NEW ZEALAND

National Horizon Scanning Unit
Horizon scanning prioritising summary

Volume 2, Number 1:

Barcoding of medical items and patients to increase patient safety.

December 2003

AHTA

Adelaide Health Technology Assessment

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The production of this *Horizon scanning prioritising summary* was overseen by the Health Policy Advisory Committee on Technology (HealthPACT), a sub-committee of the Medical Services Advisory Committee (MSAC). HealthPACT comprises representatives from health departments in all states and territories, the Australia and New Zealand governments; MSAC and ASERNIP-S. The Australian Health Ministers' Advisory Council (AHMAC) supports HealthPACT through funding.

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PRIORITISING SUMMARY

REGISTER ID: **0000052**

NAME OF TECHNOLOGY: **BARCODING**

PURPOSE AND TARGET GROUP: **BARCODING OF MEDICAL ITEMS AND PATIENTS TO INCREASE PATIENT SAFETY**

STAGE OF DEVELOPMENT (IN AUSTRALIA):

☐	Experimental	☐	Established
☒	Investigational	☐	Established *but* changed indication or modification of technique
☐	Nearly established	☐	Should be taken out of use

AUSTRALIAN THERAPEUTIC GOODS ADMINISTRATION APPROVAL

☐	Yes	ARTG number	
☐	No	☒	Not applicable

INTERNATIONAL UTILISATION:

COUNTRY	LEVEL OF USE		
	Trials Underway or Completed	Limited Use	Widely Diffused
USA		✓	
Implant tracking survey, Australia	✓		
Medical devices supply chain barcoding, Australia		✓	

IMPACT SUMMARY:

Barcoding is a widely established technology utilised to organise logistic functions and to streamline the flow of information. Barcoding is common place in the management of health care materials but is lacking at point of care. The FDA (USA) are expected to announce early in 2004 the mandatory barcoding of all single use dose packaging of drugs, which will match the barcode on the patient's wristband and medical chart, ensuring the correct dose of the correct drug.

Currently manufacturers are not required to barcode single dose drugs and little pressure exists for them to adopt barcoding as few hospitals have invested in point-of-care scanners. Approximately 8% of hospitals in the USA have adopted scanning technology for medication safety (Scalise 2002).

The Quality in Australian Health Care Study, a retrospective survey, estimates that 80,000 medication-related hospitalisations occur each year in Australia, including adverse drug reactions and medication errors. This total includes adverse events that occur during hospital stay and events responsible for hospital admission. Approximately 40% of medication errors were considered avoidable. Medications that were most commonly associated with adverse events were cardiovascular drugs, anti-hypertensives, antibiotics, anticoagulants, NSAIDs and anti-neoplastic agents. The economic impact of medication errors on the Australian health

system is high with estimates of $350 million annually for hospitalisation costs alone (Roughead 1999).

In the United States all Veteran Affairs medical centres have adopted barcode medication administration (BCMA). Implementation of this system required commitment from medical staff, pharmacy and information management services. Problems were initially experienced with hardware such as choosing between wired or wireless scanners and patient armband durability. In a narrative review of BCMA in the Martinsburg VA Medical Centre, Coyle reported a 24% reduction in medication errors post-BCMA implementation (Coyle 2002).

A better medication management system (BMMS) is currently being developed in Australia by the Commonwealth Department of Health and Ageing, based on the Canadian PharmaNet model. BMMS aims to develop the secure transfer of patient medication information between doctors, pharmacists, hospitals and the Health Insurance Commission but does not specifically indicate a barcode chain of supply. BMMS is currently envisioned to have voluntary participation of patients.

CONCLUSION:

Based on Australian government interest in reducing medication error, and the recommendation by the United Sates FDA to introduce mandatory barcoding of all single use dose packaging of drugs, it is likely that barcoding may be trialled in the Australian Health system in the future. However, the evidence-base appears to be limited and of poor quality.

HEALTHPACT ACTION:

It is therefore recommended that this technology be archived, however this information should be forwarded to Mediconnect.

SOURCES OF FURTHER INFORMATION:

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Coyle, G. A. & Heinen, M. (2002). 'Scan your way to a comprehensive electronic medical record. Augment medication administration accuracy and increase documentation efficiency with bar coding technology', *Nurs Manage*, 33 (12), 56, 58-59.

Haugh, R. (2003). 'Bar code bandwagon', *Hosp Health Netw*, 77 (5), 54-56, 52.

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Scalise, D. (2002). 'Medication safety. Bar coding: the forgotten technology', *Hosp Health Netw*, 76 (4), 16.

Simpson, N. J. (2003). 'Bar coding for patient safety', *Journal of Healthcare Information Management*, 17 (2).

Wrobel, J. P. (2003). 'Are we ready for the Better Medication Management System?', *Med J Aust*, 178 (9), 448-450.

SEARCH CRITERIA TO BE USED:

Automatic Data Processing/*legislation & jurisprudence
Medication Errors/prevention & control
Medication Systems, Hospital/*legislation & jurisprudence
Patient Identification Systems/*legislation & jurisprudence
Safety Management/legislation /organization/ administration & jurisprudence
*Medical Records Systems, Computerized
Point-of-Care Systems/economics