O’Farrell et al (2001) compared 105 paired ultrasound measurements on 45 patients. The ultrasound assessment changed nursing practice in 51% of the cases; the most common change (32%) was that nurses did not catheterise the patient. Where the ultrasound assessment did not change practice, the most common reason was that it confirmed the need for catheterisation. The authors concluded that bladder ultrasound was an accurate and reliable tool that changed nursing practice in an acute neuroscience unit.

However, not all studies on bladder ultrasound have been positive. Fedorkow et al (2005) compared the pain scores recorded with urethral catheterisation and bladder scan and reported that patients found the bladder scan to be more uncomfortable. They also found that ultrasound consistently underestimated the urine volume in post-operative urogynaecology patients.

The accuracy of the portable bladder scan has also been questioned. Tan et al (2003) suggested the results were not accurate in the presence of other pelvic pathology and Alivizatos et al (2004) reported that scans were not accurate after an increased water load had caused a diuresis.

Caution has also been expressed about the use of automated bladder scanners to identify urine volumes in complex cases in neonatal ICU (Wyneski et al, 2005) and in postnatal women (Mathew et al, 2007).

**TRAINING AND EQUIPMENT**

A simple residual bladder scan, using a scanner set up for this purpose, requires minimal technical skills but training is required to interpret the results (Lehman and Owen, 2001).

A range of portable bladder scanners are available in the UK, which can broadly be defined as:
- Real-time scanners;
- Volume mode – point and shoot (non-real time);
- Combination.

The latest ‘real-time’ scanners enable the nurse practitioner to freeze the image of the bladder, giving interim and final residual volume readings. Although these images may reveal potentially serious bladder abnormalities – for example, stones, diverticulae, ovarian cysts and tumours – they are not intended for use as a diagnostic instrument for bladder pathology. In continence management, the bladder scanner’s primary role is to measure pre- and post-void residual urine, thus determining bladder volume and, potentially, identifying incomplete bladder emptying.

If the scan is unclear or inconclusive, or if an abnormality is identified, the patient should be referred for further investigation.

**ULTRASOUND GOVERNANCE**

If a portable bladder scanner is to be used, a governance framework must be in place.

A quality assurance programme (QAP) is required to ensure safe practice to protect patients and staff from misdiagnosis and