Measurement of lymphoedematous limbs using an interval circumferential tape measurement technique.

Measurement forms part of the overall assessment of the person at risk of or with lymphoedema. It allows the quantification of limb size difference and change over time with intervention or as a consequence of complications. Accurate measurement will assist in targeted long term management and has the potential to facilitate optimal outcomes based on specific response to indicated changes.

The technique of circumferential measurement using a tape has been reviewed by a peer (Delphi) process in Australia. The results of this process developed a consensus for a standardized technique (ALA Lymphoedema Measuring Standards) and measurement chart (ALA Lymphoedema Measuring Forms) which is available on the ALA website www.lymphoedema.org.au. The use of this standardized technique gives improved reliability and comparison to outcome and research data, and is widely used by Australian and New Zealand clinicians and researchers. At this time, Australia is the only country which has a consensus method developed using the Delphi technique.

There are four ways that detected change in circumferential measurements can be presented, depending on outcome requirements. These are:

1. **Summated change in multi-point measurements**: Differences between the unaffected and affected limbs, and between baseline and subsequent measures, measured at 10 cm intervals, show changes over time.

2. **Absolute differences at single point measurement**: Although showing similar changes to the above, here each measure point can provide information about changes in local areas which may be masked by summated multi point measurements.

3. **Percentage differences from multi and single point measurement**: Although showing similar outcomes to those for 1 and 2 above, using percentage difference allows for the fact that a two cm difference may appear large on a limb of small circumference but small on a larger limb when any comparisons are made.

4. **Absolute or percentage volume change**: When multi point measures are made for each segment of the limb, volume change can be calculated using formula on the basis of a truncated cone or cylinder assumption. This allows the calculation of an absolute or percentage difference but may lose some accuracy and thus value, when the limb is irregular.

Clinicians and researchers may choose to use all or some of these methods. However, the method used must be identified and applicable to the circumstances of the situation.

For the purpose of research or publication the methods recommended are summated change in multi-point measurements and tracking of absolute and percentage volume change.

www.lymphoedema.org.au