

# Study finds baby bottle measurements wrong, potentially harmful

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Credit: University of Western Sydney

A study by Western Sydney University has found more than half of infant feeding bottles have inaccurate or missing markings, sparking calls for Australia and other countries to introduce and enforce industry standards for bottles to prevent formula fed babies from becoming ill.

For the study, published in the journal of Maternal and Child Nutrition, Adjunct Associate-Professor Karleen Gribble from the School of

Nursing and Midwifery and her [colleagues](#) purchased the entire range of infant feeding bottles available for sale in Australia.

After testing, the team found one in five bottles had at least one marking that was deemed so inaccurate that it would fail to meet the requirements of the only existing standard for bottles in the world, the European standard. Markings underestimated and overestimated actual volumes by as much as 43%.

In addition, 2/5 of the bottles were missing at least one marking for a volume that instructions for reconstituting infant formula require parents to measure. In total, 57% had either inaccurate or missing markings.

"Parents using infant formula are routinely instructed to use the volume markers on the bottles to measure water, but this advice assumes that bottle volume markers are accurate," says Associate Professor Gribble.

"Unfortunately, our study has shown these markings on many popular products are either incorrect, or missing entirely."

Of the bottles examined, 41% bottles claimed compliance with the European Standard, 6% with non-existent Australian standards, and 54% bottles had no standard claim.

The bottles claiming compliance with the European standard were just as likely to be inaccurate as those that made no claim, and expensive bottles were no more accurate.

"We already know that parents and caregivers tend to add more powdered infant formula than is instructed, and the risk of over-concentration is likely to be compounded when bottles over-represent volumes," says Associate Professor Gribble.

"This has implications for infant health, with dehydration a severe risk, and excessive weight gain another issue. The greatest risk is for very small or premature infants who lack the capacity to deal with over-concentration. Over concentrated infant formula can also result in constipation and exacerbate the symptoms of reflux"

"On the other side, under-concentrated infant formula could result in poor growth and development for children who aren't receiving the required nourishment."

Associate Professor Gribble says there's an urgent need to introduce well-enforced standards in Australia and overseas to avoid harm to babies.

"The bottles in this study with inaccurate or missing markings were manufactured or distributed by companies from throughout the world including: Australia, Austria, Bulgaria, China, Hungary, Germany, Malaysia, New Zealand, Singapore, Thailand, UK and the USA, and so this is an international problem putting babies at risk worldwide. The European Commission should investigate the failure of their standards to ensure that volume markers on bottles claiming compliance with their standard actually do so," she says.

"All countries should have comprehensive standards that require the testing of all volume markers as bottles can have a mixture of accurate and inaccurate volume markers. There also needs to be appropriate enforcement of these standards to ensure that babies are protected."

Associate-Professor Karleen Gribble says disposable liner bottle systems that use a disposable insert to contain liquid are particularly inaccurate, and volume markings on them should be prohibited to prevent them being used to measure water.

"Missing markings are potentially just as problematic as inaccurate ones as caregivers may seek to estimate water volume using the available markers. New standards should require markings to be present for the volumes of water specified on infant formula," she says.

"Infant formula is a special class of food, the composition of which is tightly regulated in order to minimise harm to infants. However, if parents are unable to accurately measure water because bottle markings are inaccurate, their babies will not be getting infant formula of the right composition. Formula fed infants are a vulnerable group and we should all be concerned that poorly manufactured infant feeding bottles are placing them at risk."

Provided by University of Western Sydney

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