

ASSESSING BREASTFEEDING



1 Children who receive only human milk for the first 6 months of their lives are more resistant to disease and infection and less likely than children fed with formula milk to develop diabetes, cardiovascular disease, and cancer in adulthood.



2 With the IAEA's guidance, nuclear techniques are being used to test the effectiveness of breastfeeding promotion strategies. Researchers use non-radioactive stable isotopes of hydrogen (^2H) in water ($^2\text{H}_2\text{O}$) to measure the movement of liquid from mother to child.



3 How much ^2H they find is directly proportional to how much human milk the baby has ingested. The technique also shows whether the baby has eaten anything other than human milk over a two-week period.



4 Morocco, along with dozens of countries around the world, has experienced an alarming reduction in the frequency and consistency of exclusive breastfeeding.

G USING NUCLEAR SCIENCE



5 In Morocco's case, the decline (first noticed in the 1980s) was attributed to the growth of the formula milk industry, the increasing number of working mothers, and poorly trained health care workers. The country's exclusive breastfeeding rate dropped from 62% in 1992, to 15% in 2006.



6 So Morocco's Ministry of Health developed training courses for health professionals and awareness programmes for mothers. They evaluated their success by using deuterium dilution technique to assess the exclusivity of breastfeeding. The results were alarming.



7 Instead of the 27% exclusive breastfeeding that was reported by questionnaire surveys, and by periodically weighing babies, the use of stable isotopes showed that only 13% of infants were actually being breastfed exclusively for the first 6 months.



8 The IAEA helps 34 Member States use nuclear techniques in the promotion of exclusive breastfeeding because of the undeniable individual, societal and economic benefits of proper nutrition in early life.