

# What is known about maternal and infant nutrition in Scotland?

September 2010

## Summary

- This review describes what is known about maternal and infant nutrition in Scotland, using routine data sources wherever possible, to inform the Scottish Government's development of a strategy to improve maternal and infant nutrition.
- There are limited data available. Some of the main sources have limited Scottish samples and are conducted very infrequently. Different sources report their results in different ways. Making comparisons between sources or over time is fraught with difficulty.
- Most women of childbearing age have an adequate daily intake of iron and calcium but a diet deficient in fruit and vegetables. During early pregnancy most women take folic acid, but it is unclear whether the amount and timing are optimal. There are few population-level data on other aspects of nutrition during pregnancy. There is no Scottish information on the nutrition of mothers following birth.
- Breastfeeding is initiated with 70% of infants but this falls sharply to only 24% breastfeeding at 6 months, according to survey data. Routine data on most Scottish births suggest that only 36% are breastfed at 6–8 weeks (survey data give 44% at 6 weeks). Most infants have solids introduced into their diet too early (before 6 months). There are few recent data on the diet of infants following the introduction of solids.
- There are few data on change over time, but what there is suggests little overall improvement in maternal or infant diets.
- There are neither sufficient nor sufficiently timely data available on maternal and infant nutrition in Scotland. Nutrition surveys are expensive long-term commitments and, as much as possible, existing routine administrative, clinical and survey data sources should be exploited to monitor behavioural, social and cultural (including commercial environment) change at population level.

This briefing is a summary of the full review, which is a web-only publication. The review is available to download from 'publications' at [www.scotpho.org.uk](http://www.scotpho.org.uk) and from 'publications' under 'resources' at [www.healthscotland.com](http://www.healthscotland.com)

## Introduction and purpose

The diet and nutritional status of the mother before conception and during pregnancy, the feeding received in the first few months of life, the process of weaning onto solid foods, and the diet and nutritional status of the growing infant all contribute significantly to the long-term health of the population. Maternal obesity increases immediate risks and may have implications for longer-term adult health. Recognising this, the Scottish Government is developing a strategy to improve maternal and infant nutrition.

To inform the strategy, this review describes current maternal and infant diet and nutritional status in Scotland. The objectives were:

- to detail the current availability of maternal and infant nutrition information in Scotland from national surveys, routinely collected data and robust ad hoc data sources
- to identify potential nutritional and dietary indicators that can be used to assess maternal and infant nutrient intake and nutritional status in Scotland
- to assess, where possible, using these indicators, maternal prenatal and postnatal diet and nutritional status, breastfeeding, weaning, and the diet and nutritional status of infants after weaning in Scotland.

## Approach

The review is structured around key phases in pregnancy and infancy, from preconception up to the infant's third birthday. It compiles existing published information and some secondary analysis of existing data sets: no new data collection was undertaken.

We sought relevant data from routine sources, including regularly conducted surveys, in Scotland. Where this was not available, we sought one-off nationally representative surveys in Scotland or the UK. (Most UK-wide nutritional studies have small Scottish samples that may not be adequately representative.) We excluded all non-UK studies.

The review assessed the data available on general diet, nutrient intake and nutritional status of key vitamins and minerals, maternal obesity, birthweight, breastfeeding, formula feeding and the introduction of solids (weaning). Based on advice from public health nutritionists, the key vitamins and minerals included were vitamin D, folate, iron and calcium.

## What information is available?

There are limited data available on maternal and infant nutrition in Scotland. Many of the sources used were not recent and/or had small samples not adequately representative of the Scottish population. For example, all three relevant UK National Diet and Nutrition Surveys had small Scottish samples. There are no routinely collected data in Scotland on maternal nutrition before, during or after pregnancy. The diet of women of childbearing age was used as a proxy because some studies suggest little change in pregnancy from prior dietary patterns. There are some data collected on infant nutrition in Scotland, mainly breastfeeding. Few data are collected after the routine 6–8 week review until the start of school at around 5 years of age.

Making comparisons between different sources or over time is difficult. Results can be reported for dietary intake, nutrient intake, nutritional status or a combination of these (and other intake, such as supplements). Results may be presented as means, medians or proportions in relation to thresholds, and for inconsistent age groupings.

## What does it tell us about maternal nutrition?

Most women do not meet current dietary guidelines. Over one-half of women aged 16–44 years are overweight or obese. Diets are high in saturated fat and sugar and below the recommended intakes for fruit and vegetables, oil-rich fish and dietary fibre. The poorest diets are consistently found in women from the most disadvantaged groups. In a recent large-scale study in Aberdeen, poor food choices during pregnancy were consistent with poor nutrient intakes and there was a strong social gradient. It is likely that a significant proportion of young women enter pregnancy with suboptimal levels of some nutrients. Folate supplementation remains inadequate. There appears to be little improvement in women's diets over time, but the information available is limited.

## What does it tell us about infant nutrition?

Breastfeeding, as reported in surveys, falls rapidly from 70% initiation to 57% at 1 week, 44% at 6 weeks and 24% at 6 months. These survey data may be optimistic. Routine data covering most births in Scotland give a rate for 2009 of only 36% breastfeeding at 6–8 weeks (27% exclusive breastfeeding). Mothers in less deprived areas are more likely to breastfeed. Sources conflict on whether breastfeeding rates have improved modestly or remained static. The more comprehensive routine data suggest little change.

Over one-half of mothers in Scotland use infant formula, often not correctly prepared, for almost all feeds by age 4–10 weeks. One in ten mothers inappropriately use follow-on formula milk before 6 months of age. There has been a definite shift towards introducing solid food at a later stage but almost all infants in Scotland in 2005 had solids introduced before the recommended age of 6 months.

## Conclusion

There are neither sufficient nor sufficiently timely data on maternal and infant nutrition in Scotland. The sources available do not enable the story of maternal and infant nutrition in Scotland in 2010 to be told adequately. The pace of improvement in nutrition appears, however, to be slow.

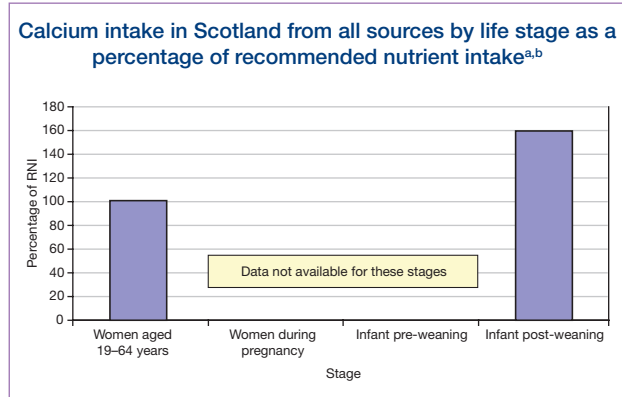
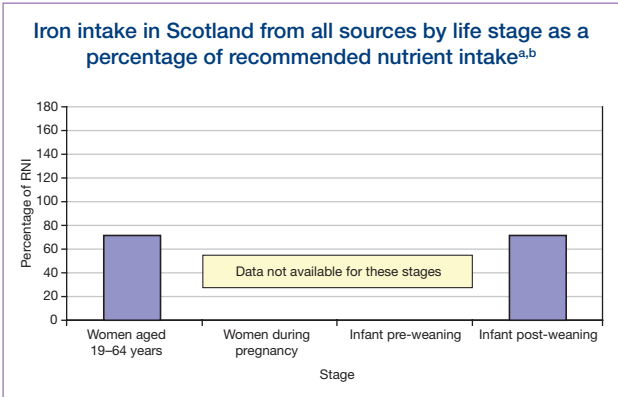
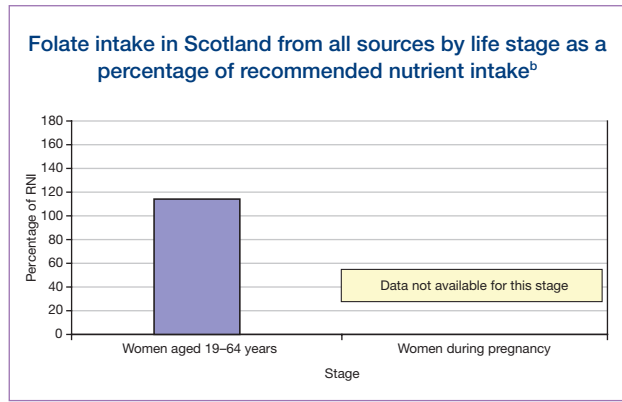
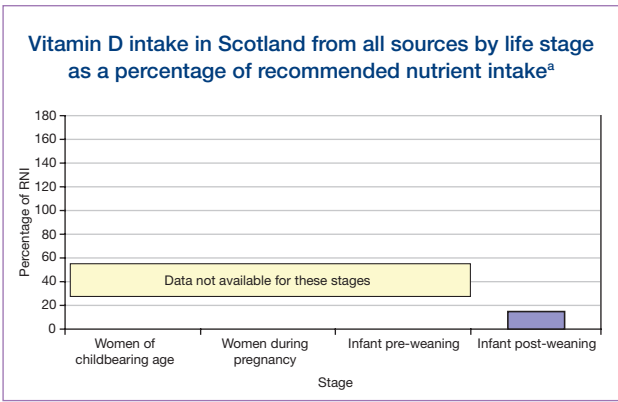
## Looking forward

There are many gaps and inadequacies in the available information but improvements are being made. The new format of the UK National Diet and Nutrition Survey of adults and children has an increased Scottish sample (results available in 2012). A new UK nutrition survey for infants (aged 4–18 months) is being piloted. The scope for acquiring better nutrition information from existing Scottish surveys should be explored. There may also be potential for routine administrative and clinical data sources to provide national information.

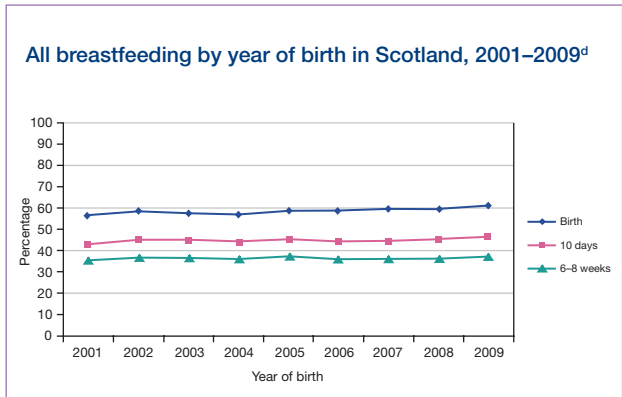
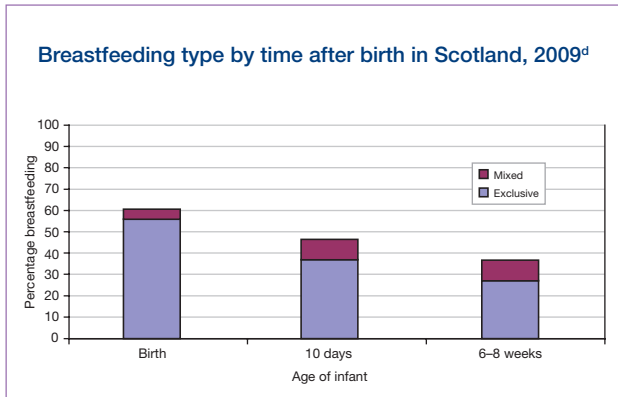
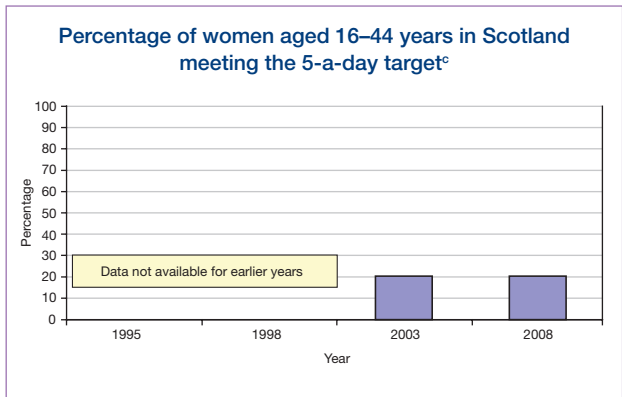
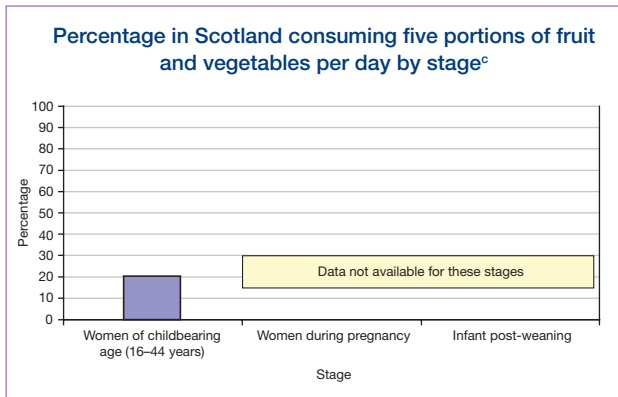
Assessing the impact of the maternal and infant nutrition strategy will require a monitoring framework that is consistent, scientifically well founded and achievable without significant diversion of resources that might be used to implement the strategy. Maximum use should thus be made of existing routine administrative, clinical and survey data sources.

There is some evidence that maternal diet changes little with pregnancy and that maternal diet and infant diet, including breastfeeding, are inter-related. Further research should be carried out on this because, if confirmed, it would enable monitoring of change at population level to focus on two areas of nutrition for which existing data sources are relatively strong.

# What is known about maternal and infant nutrition in Scotland?



Nutritional status of vitamin D, folate, iron and calcium is not available for any stage from a representative Scottish sample.



Sources: a) National Diet and Nutrition Survey: Infants aged 1½-4½ years; b) National Diet and Nutrition Survey: Adults aged 19-64 years; c) Scottish Health Survey; d) Information Services Division Scotland. For details see full review.

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