Piccolipiù and NINFEA: participation to two national birth cohort studies preliminary data

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BACKGROUND AND AIMS

Exposures acting from the periconceptional period to the first months of infant's life affect normal development and health in childhood and across the life course.
Birth cohort studies are powerful tools to study the impact of early exposures prospectively and at multiple time points during child development. They also enable to collect biological material allowing the measurement of biomarkers.
Starting from 2010 we participated to the two larger cohort studies build up in Italy: NINFEA and Piccolipiù study.
The main specific research aims are:
-To investigate the association between several risk and protective factors (table) and infant and childhood morbidity, in particular for endpoints of large interest like respiratory diseases, child development and obesity, neurodevelopmental development;
-To promote collaboration with other birth cohorts particularly in Europe in order to have enough potency to study rare risk factors (e.g. maternal diseases and exposures in pregnancy) and outcomes (e.g. cancers);
-To promote the infant and child health also by the use of traditional and innovative tools (social media) for the communication of evidence based prevention messages.

METHODS

The **NINFEA** cohort started as a pilot study in the city of Turin in July 2005 and has been gradually extended to the rest of Italy. Members of the cohort are children of mothers who have access to the internet, have enough knowledge of the Italian language. They can register at any time during the pregnancy through the project website (www.progettoninfea.it) and complete the first questionnaire during pregnancy and follow up questionnaires when the child is 6 and 18 months, and 4 and 7 years old.
Currently, the NINFEA study is actively advertised in the city of Turin, and in the Tuscany Region. In these areas leaflets and posters are distributed, and the study is introduced to pregnant women when they reach hospitals or family clinics. Passive recruitment includes recruitment through the internet (websites, forums, social networks) and the media.

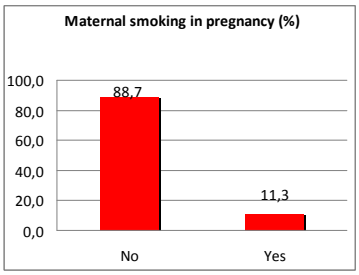
The **Piccolipiù** study aims to recruit a national birth cohort of 3000 children in 6 maternity units in Florence (Ospedale Santa Maria Annunziata), Rome (2 Units), Trieste, Turin and Viareggio and follows it up prospectively. Recruitment began in October 2011 and is planned to continue during 2013. The study participation is proposed to all pregnant women attending prenatal clinics or during the hospital admittance for delivery. Biological material (blood samples from the mother, and from umbilical cord; pieces of umbilical cord; blood spotted on filter paper) is collected, processed, and transferred to the National Institute of Health biobank. Women enrolled receive the baseline questionnaire during pregnancy and additional questionnaires are filled in at 6, 12, months of infant life either on the Internet (www.piccolipiu.it) or on paper; mothers are planned to be contacted at 24 months and beyond (approximately every 2 to 3 years) to collect information through questionnaires, and to bring the child for a visit to an outpatient clinic.

RESULTS

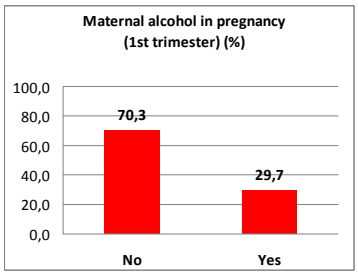
NINFEA: A total of 5504 pregnant women have been recruited so far. Recruitment in Tuscany (994 women) accounts for 40% off all recruited women since June 2010.

Piccolipiù: A total of 2121 pregnant women have been recruited so far and 549 in Florence.

Examples of exposures in pregnancy and in the first year of life

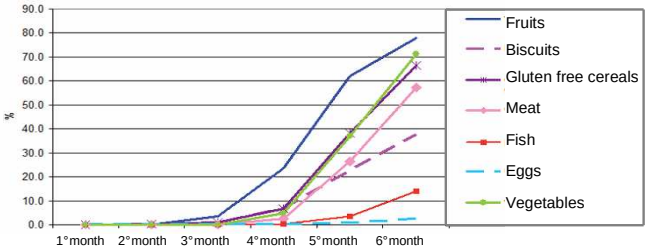


NINFEA Study



Piccolipiù Study

Introduction of solids food in the first 6 month



Risk and protective factors in NINFEA and Piccolipiù cohort studies

	PREGNANCY	1st YEAR	FOLLOW-UP
RISK/PROTECTIVE FACTORS			
Social and demographic characteristics	x		
Medical history	x		
Medications (e.g. folic acid, vitamin D, antibiotics)	x	x	x
Maternal lifestyle behaviours (e.g. alcohol and smoking)	x	x	x
Maternal weight and diet	x	x	x
Work/occupational exposures	x	x	x
Environmental exposures			
Passive smoke	x	x	x
Mold/moisture at home	x	x	x
Traffic/air pollution	x	x	x
Noise	x	x	x
Pets	x	x	x
Chemicals	x	x	x
Maternal emotion/post-partum depression	x	x	x
Use of health services	x	x	x
Prematurity and birth weight	x		
Breastfeeding and diet including weaning		x	x
Use of television, books and other activities		x	x
Accidents and their prevention (eg. baby's seat)		x	x
Day care attendance		x	x
Vaccinations		x	x

Tools for health promotions: web site, newsletter, baby's diaries

www.piccolipiu.it

www.progettoninfea.it

CONCLUSIONS

Both traditional and internet-based epidemiological prospective birth cohort studies are feasible and can reach a broad geographical coverage.
The internet becomes the predominant interactive medium for research purposes, but also to promote best practices and child health.
Collaboration with European birth cohort (CHICOS project) and others outside Europe (Early Life Factors Study , New Zealand) are in progress and scientific papers are being submitted.

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Piccolipiù Study Team (principal investigators): Domenico Di Lallo, Sara Farchi (ASP Lazio), Francesco Forastiere (Dip. Epidemiologia SSR Lazio), Luigi Gagliardi (Ospedale Versilia), Lorenzo Richiardi (AO Città della Salute e della Scienza di Torino e Università degli Studi di Torino), Luca Ronfani (Istituto per l'infanzia IRCCS Burlo Garofolo, Trieste), Franca Rusconi (AOU Meyer), Maria Antonietta Stazi (ISS).