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| **Title of Symposium** Developing innovative alternative way of prompting healthy growth in early childhood using mobile apps |
| **General Objective**Childhood obesity prevention interventions are vital to reduce the current trends of obesity worldwide. As eating behaviors are learned from the beginning of life, it is these habits that are carried throughout the life stages, affecting weight gain. Unhealthy infant feeding practices including early cessation of breastfeeding, formula feeding, early introduction of solids and introduction of unhealthy foods have been shown to contribute to unhealthy weight gain in infants. With increased usage of mobile phones, delivering mobile health (mHealth) interventions have great potential to promote health. This symposium will focus on key lessons from four research studies that tested the feasibility and acceptability of developing mobile app for promoting healthy infant feeding practices, and explored barriers and facilitators in developing an app. **Proposed format of the session**Chair: Introduction and rationale (ST) – 10 mins Oral 1: From door bells to smartphone App: an innovative approach to preventing childhood obesity (by LMW) 10 minsOral 2: A feasibility study of developing a Chinese version of Healthy Beginnings (GH) 10 minsOral 3: Reaching fathers with a breastfeeding intervention: Process evaluation of the Milk Man app (BW) 10minsOral 4: Promoting healthy infant feeding practices among disadvantaged mothers: The Growing healthy program (ST) 10 minsPanel questions and guided discussion (LMW) – 20 mins**Conference theme and/or subthemes addressed**This symposium will address an issue of health inequality while applying for new technology such as mobile app for delivering a health promotion program and discuss how to ensure health equity throughout the life course, within and among countries, making each member of the global society an empowered lifelong learner.**More specifically:*** Discuss the concept development of an innovative and alternative way of delivering a Healthy Beginnings program using mobile apps
* Discuss the quality of information on existing apps targeting infant feeding
* Explore factors that should be considered when developing mHealth interventions targeting infant feeding
* Explore factors that should be considered when developing mHealth interventions targeting infant feeding for mothers and fathers
* Explore key factors that influence the uptake of mHealth interventions amongst parents
* Explore key barriers to engaging parents in using mHealth interventions targeting infant feeding and potential solutions
* Summary:

This session will bring together 3 speakers from Australia and 1 speaker from China to present different perspectives on mHealth interventions promoting healthy infant feeding practices.  |

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| **Title of Presentation 1****From door bells to smartphone App: an innovative approach to preventing childhood obesity** |
| **Background/Objectives**Childhood obesity continues to be one of the major public health concerns worldwide. There is an urgent need to develop effective prevention programs. Over the past 10 years, we have developed, implemented, and evaluated an early obesity prevention program called Healthy Beginnings Program. It was the world-first home-visiting intervention program that can reduce the early onset of childhood obesity. However, the high cost associated with home visits potentially limits its population reach. Advances in communication technologies have opened new possibilities for innovative health service delivery. One of the growing applications is smartphone app, whereby health promotion messages are sent directly to targeted recipients. The purpose of this presentation is to discuss the concept generation, needs assessment and development of the ‘Healthy Beginnings’ app. **Methods**Informed by evidence from the Healthy Beginnings home visiting program, we successfully pitched the idea of developing a ‘Healthy Beginnings’ app to the Sydney Local Health District Research Innovation funding committee. A needs assessment with users and community consultation were conducted prior to contracting an app developer. A partnership approach between the health promotion professionals and IT specialists was adopted in developing the app.  **Results**Through the project we found that the use of apps was common among the pregnant women. About 60% had used an app for health information purposes. The majority reported that they were extremely (30%) or very likely (53%) to use an app promoting health. But women with university education were more likely to use an app for health information than others. In addition we have now developed ‘Healthy Beginnings’ App which is available for iPhone users at this stage. The app containing all Healthy Beginnings information has been very well received by the community. Currently, the NSW Ministry of Health has adopted and adapted the app to develop a new app combining both Get Healthy in Pregnancy and Healthy Beginnings programs for all smartphone users. **Discussion**Developing a smartphone App as alternative means to deliver health Promotion programs could be innovative and cost-effective with a great potential. However, the effectiveness of the ‘Healthy Beginnings’ app remains to be tested. Whether the use of smartphone app for health promotion purpose could result in health inequality needs to be further explored. **Keywords** smartphone App, Healthy Beginnings program, health promotion  |

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| **Title of Presentation 2** **A feasibility study of developing a Chinese version of Healthy Beginnings** |
| **Background/Objectives**Smartphone applications may provide a novel way to provide health information and facilitate individual access to health service and also to overcome some barriers associated with traditional face-to-face health education. Over the past few years collaboration between University of Sydney and Fudan University (China) has been established in order to share research experience and evidence in the field of early obesity prevention. The objective of this presentation is to discuss research translation from Australia into a Chinese context. **Methods**A multidisciplinary research team including antenatal care physicians, diabetes nurses, dietitians and software engineers was formed to plan and implement this project. We conducted a survey with pregnant women in the two hospitals to collect information about the usage of pregnancy app for health promotion in Shanghai, China; and also a qualitative study to get a better understanding of the key features of an app they would like to have; as well as three focus group discussions with healthcare professionals and software engineers. **Results**We surveyed 537 study participants, of whom, 98.7% pregnant women owned and used a smartphone during pregnancy, and 81.8% were iPhone users. The usage of pregnancy apps was common among the respondents. Nearly 70% of women wanted to get nutrition and lifestyle support through internet. Nearly 50% of women would like to get support from an app during pregnancy. They also wanted the app that could include the features: tracking the growth of their baby; monitoring their own changes during pregnancy; getting information about healthy diet, physical activity and pregnant related symptoms; recording their weight, diet, physical activity; sharing their experiences; recording the time, items and outcome of their antenatal obstetric examination; The participants also expressed that they had searched websites and apps for pregnancy information, but they did not find an app with authoritative, professional and credible health information. We used the results from these studies to inform the development of the contents, features and structure of the app. Currently the app is being developed and will be available for user testing prior to the conference. **Discussion**The study from Shanghai supported the need of developing an app for supporting new mothers. The usability and effectiveness of the Chinese version of Healthy Beginnings app will be evaluated in future studies. Incorporating smartphone app interventions into healthcare service is just at the exploratory stage in China, but lessons from our project can be useful for other similar projects. **Keywords** smartphone App, Healthy Beginnings program, health promotion  |

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| **Title of Presentation 3** **Reaching fathers with a breastfeeding intervention: Process evaluation of the Milk Man app.** |
| **Background**Breastfeeding is an important public health issue with significant health benefits for infants and mothers. Despite recommendations from the World Health Organization, less than 15% of Australian infants are exclusively breastfed to the recommended 6 months. There are many factors that impact on breastfeeding, and paternal support is particularly important. Mobile technology offers unique ways to reach fathers in the perinatal period and the Milk Man app was based on these insights. The process evaluation aimed to identify effective engagement strategies, and understand patterns of app use.**Methods**The Milk Man app was developed based on a best practice approach that included development in a multidisciplinary team, being grounded in behaviour change theory and involving end users throughout. A range of strategies encouraged fathers to engage with information and conversation about breastfeeding and early parenting such as an information library, gamification, push notifications, and social connectivity. Milk Man was trialled in a large RCT and fathers had access to the app from about 32 weeks gestation to 26 weeks postpartum. Process evaluation was mixed methods from a self-completed questionnaire and a customised app analytics framework embedded in the app. Results presented here are to 6 weeks postpartum.**Results**86% (586/681) of fathers randomised into an app group downloaded the app. Push notifications and the conversation forum were the two main motivators for use. Fathers posted comments in the conversation forum 1126 times (avg. 2.21) and read an average of 11.46 library articles. Half of fathers (54%) said the information in the app had led to a discussion with their partner. This was more apparent for those who used the app for longer than 6 weeks. The gamification results were varied, however at 6 weeks postpartum, approximately a third of fathers said the gamification elements were motivating their continued use.**Discussion**The process evaluation results demonstrate Milk Man was an acceptable approach that fathers are prepared to use to seek information and support over the perinatal period. The conversation forum emerged as the focal point of the app and there are ways it could be strengthened. Push notifications were an effective way of encouraging engagement. Working in partnership with the app developer throughout the trial was beneficial. The app demonstrated encouraging results in generating conversation between partners.These findings demonstrate encouraging results with using mobile technology to engage fathers, and there are clear pathways to further research. As parents increasingly turn to digital media to source information and support, research is vital to understand the barriers and facilitators in developing evidence-based interventions. The evaluation of the engagement strategies will have broad applicability to other mHealth interventions.**Keywords**Fathers, breastfeeding, engagement, mHealth, gamification, social connectivity. |

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| **Title of Presentation 4** **Promoting healthy infant feeding practices among disadvantaged mothers: The Growing healthy program** |
| **Background**Eating behaviours which are learned from the beginning of life are carried throughout the life stages, and can potentially affect weight gain. Feeding behaviours such as early cessation of breastfeeding, unhealthy formula feeding practices, early introduction to solid foods and feeding non-core foods are correlates of unhealthy weight gain. Further, there are inequities across socio-economic status, where families from a lower socio-economic status are more likely to practice unhealthy feeding behaviours. Mobile health (mHealth) interventions have great potential to promote health, and the Growing healthy app was targeted at supporting healthy infant feeding practices for socio-economically disadvantaged mothers. **Methods**A series of studies were conducted including systematic analyses, analysis of infant feeding website and apps and qualitative interviews with the target demographic to guide the development of the Growing healthy app. The findings from the formative research and utilisation of the behaviour change wheel informed the delivery and the content of the app. Various strategies were selected to enhance the participants engagement with the app including offering information and videos, tailored push notifications according to the baby’s age and stage of feeding, interconnectivity, weekly emails and a Growing healthy Facebook group. Growing healthy was a feasibility study and mothers had access to the app from about 30 weeks’ gestation or less than 3 months of the infant’s age to 9 months. Participant engagement was measured through mixed methods including a developed Engagement Index, surveys at baseline, 6 and 9 months of the infant’s age and post qualitative interviews. **Results**75.0% (225/300) of recruited participants met the inclusion criteria for the app study. Participants were most likely to have higher engagement if they were first time parents, who used both the app and opened weekly emails, and had joined the program if their child was younger than 3 months. On average mothers took 14 days (range 0-184 days) to activate the app, accessed the app 11.6 times (range 1-64), opened 11/91 push notifications sent (range: 0-70) and accessed 30/ 303 available pages. There was a gradual decrease in the app usage throughout the 9 month program. **Discussion** The results from the Growing healthy study demonstrated that using a mHealth is a practical approach to deliver information to support parents’ with infant feeding behaviours. These findings highlighted that this approach can potentially reduce the existing inequalities such as those from a lower socioeconomic background who can be reached using an mHealth approach which has implications for informing policy-makers, health practitioners and researchers in health promotion.**Key words:**mothers, infant feeding, engagement, mHealth, apps, health promotion |