Executive Summary:

Unsafe, repeat induced abortions are associated with a high risk of injury, long-term physical and psychological morbidity, and a heavy social and economic burden. The large number of induced abortions in China are primarily due to contraceptive failure or little/no use of contraception.

INPAC (Integrating Post-Abortion family planning services into existing abortion services in hospital settings in China), was an EC funded FP7 project with a total duration of 54 months. It aimed to evaluate the effect of introducing post-abortion family planning (PAFP) services into existing hospital services in order to reduce unintended pregnancy and repeat abortion, and thus improve women's health.

The International Centre of Reproductive Health at Ghent University (UG-ICRH) in Belgium coordinated the project and worked together with four Chinese and two European partners: Chinese Society for Family Planning - Chinese Medical Association (CSFP-CMA), Fudan University (FU), National Research Institute for Family Planning (NRIFP), West China Second University Hospital of Sichuan University (WCSUH), University of Aarhus - Danish Epidemiology Science Centre (AU-DESC) and Liverpool School of Tropical Medicine (LSTM).

The INPAC project was designed in four phases and nine work packages (WP). In the first phase, a critical review was performed on China policy and practices of family planning (WP2) resulting in 210 full-text documents among 790 identified articles from 18,538 citations. Based on the essential information from this review, a detailed situation analysis (WP3), including qualitative study and quantitative research, was conducted. The analytical findings provided great input into intervention design tailored to local conditions (WP4). A three-arm cluster randomised controlled trial was developed, which included two intervention arms and one control arm. Ninety hospitals from 30 provinces in China were randomised to the three arms of the study, stratified by province, with a total of 17,235 women participating. Additionally, to ensure the success of intervention implementation, a series of strategies and activities to monitor the invention process (WP5) were created. These included establishing monitoring plans, PAFP training and other intervention
materials, a large-scale hospital sampling framework, and an electronic data capture system. In the last research phase, we conducted two methods of effectiveness evaluations—quantitative and qualitative. The qualitative study identified a number of facilitators and barriers to the implementation of the PAFP interventions from the perspective of providers. Other key aspects were the relationship and communication between providers and clients and the opportunities and challenges for successful PAFP. The quantitative study confirmed that INPAC interventions could decrease: (1) unintended pregnancy rates, (2) repeat induced abortion rates, and (3) all pregnancies rates; while increasing: (1) the use of modern contraceptive methods, (2) the use of any contraceptive methods, and (3) the proportion of women whose contraceptive knowledge improved at the post-intervention. These main findings strongly support the conclusion that INPAC fully achieved its goal: integrating PAFP services into hospital settings do increase contraceptive use and decrease repeat abortion rates.

INPAC also focused on translating research findings into policy recommendations on health system organisation (WP7). Several essential and practical strategic advice for amending the current reproductive health policies in China was collected from members of the policy advisory board.

Moreover, research findings were conducted simultaneously with all other study activities during the study period through many encompassing, dissemination activities. In short, the INPAC project is relevant in decreasing long-term costs related to abortion in China, as well as to the efforts of providing intellectual experiences and evidence of efficient intervention solutions to other countries with high abortion rates.

Project Context and Objectives:

2. Project context and objectives

Context

It is well documented that China is one of the countries with the highest number of abortions in the world. As a matter of fact, unsafe, repeat induced abortions are associated with a high risk of injury, long-term physical and psychological morbidity, and a heavy social and economic burden. The large number of induced abortions in China are primarily due to contraceptive failure or little to no use of contraception.

The INPAC project aims to a) integrate PAFP services into existing hospital-based abortion services in China, and b) evaluate the effect of the interventions in terms of reductions in unintended pregnancies and repeat abortions. Based on the project findings, policy recommendations on health systems are being developed to improve equitable access to reproductive healthcare and family planning (FP) services for young, unmarried women as well as rural-to-urban migrant women. The project contributes to standardising PAFP services and decreasing the long-term costs related to abortion in China. The results of this research also provide insight and recommendations to other countries with high abortion rates.

Overall objective of the research

The overall objective of the research was to evaluate the effectiveness of introducing integrated PAFP services in existing hospital-based abortion services in China in order to reduce unwanted pregnancies and repeat abortions. Additionally, the research findings will be used to develop policy recommendations on sustainable development and health system organisation to enhance equitable access to reproductive healthcare.

Specific scientific and technical objectives

• To assess the needs and feasibility of integrating PAFP into existing abortion services in hospitals through the review of FP policy and current practice in China, as well as best practices of strategies to deliver PAFP in both developed and developing countries.
• To assess feasibility of integrating PAFP into existing abortion services in participating hospitals through a health systems study involving stakeholders: policy makers, health managers, abortion service providers and women who have undergone abortion.
• To develop detailed intervention strategies for improving access to and quality of FP services after induced abortion.
• To implement and monitor intervention processes, their impact on hospitals, and problems occurring during the implementation.
• To evaluate the effectiveness of integrated PAFP in terms of reduction of unwanted pregnancies and repeat abortions, and to identify health system determinants for effectiveness through comparison across intervention groups.
• To bridge the gap between research and policy through involving policy and decision makers at different levels of government.
• To draw conclusions regarding the feasibility, effectiveness, and sustainability of the interventions and to disseminate the results, nationally and internationally.

The work packages (WP) of the INPAC project

The work packages WP2- Critical review and WP3- Detailed situation analysis, were completed in Phase I (1 August 2012- 31 January 2014); the work packages WP4- Intervention design tailored local conditions and WP5- Intervention implementation and monitoring, were completed in Phase II and III (1 February 2014 - 31 July 2015); the work package WP6- Intervention evaluation was completed in Phase IV (1 August 2015 - 31 January 2017). As an essential research interest of the INPAC project, work package WP7- Bridging the
gap between research and policy and WP8- Dissemination of project progress and preliminary findings, spanned the whole project period. Additionally, WP1- Scientific project coordination and WP9- Project and consortium management, were conducted through the whole process of the research project covering 54 research months. A brief description of the context and objectives referring to the nine work packages are described below.

2.1 Work package 2 - Critical review of China policy and practice of family planning

**Overall objective**
To review China's FP policy and practice and international lessons with regard to integrating PAFP into existing health systems.

**Specific objectives**
- To conduct a critical review on China's family planning policy, practice and their implications
- To analyse the process of integrating PAFP into existing health systems in developed and developing countries in order to identify good practices through a critical review

A critical review was conducted on the FP policy and practices in China and lessons learned from other countries, including two parts:
- The first part analysed the impact of FP policy on the utilization and provision of FP services in China including: 1) FP policy, policy development and its implications; 2) Coverage of FP and PAFP, with special focus on the impact of social and culture factors on access to services; and 3) determinants of the health system in providing high quality FP. Moreover, the analytical results related to policy in China were in line with internationally adopted standards, such as World Health Organization (WHO) recommendations and guidelines;
- The second part of this review summarized the effects and lessons of integrating PAFP into existing health systems in developed and developing countries.

This review provided the essential information for a detailed situation analysis (WP3) and was then used to inform the design of the specific interventions to deliver PAFP in China (WP4).

2.2 Work package 3 - Detailed situation analysis

**Overall objective**
To understand practicability of integrating PAFP into existing abortion services in hospital settings in order to guide the intervention design adapted to the specific context.

**Specific objectives**
- Mapping the provision and utilization of abortion service in 30 provinces in China
- Assessing the capacity of hospitals for providing PAFP through the analysis of hospitals’ allocation of resources on abortion services and through the Knowledge, Attitudes, and Practices (KAP) survey among abortion service providers
- To explore the perceptions of key stakeholders of integrating PAFP in hospitals to understand the strengths and weaknesses of this approach in the context of China
- To provide baseline data for WP4 and WP6

This work package was fundamental to the further implementation of the research strategy, consisting of a detailed situation analysis. Both quantitative and qualitative methods were used. The quantitative study was conducted in 30 of the 31 administrative divisions in mainland China (22 provinces, 4 municipalities, 4 autonomous regions). Tibet was not included, mainly due to practical constraints. For the expected outcomes, the detailed situation analysis provided a study protocol including data collection tools, as well as a situation analysis report which was developed into Deliverable 3.1.

2.3 Work package 4 - Intervention design tailored to local conditions

**Overall objective**
To design feasible and context-specific interventions to reduce unwanted pregnancy and repeat abortion.

**Specific objectives**
- To design feasible and context-specific interventions
- To use the proposed interventions as a strategy to reduce unintended pregnancy and repeat abortion.

This work package developed Phase II- Empirical decision of the project. Based on the situation analysis and pre-existing knowledge, project intervention strategies were developed as a three-arm cluster randomized trial. Hospitals were the unit of randomization, including two intervention groups and one control group. Ninety hospitals were selected from 30 provinces in compliance with the inclusion and exclusion criteria. Three study populations- including 1) women seeking induced abortion within 12 weeks of gestational age; 2) abortion service providers in the participating hospitals; and 3) participating hospitals- were defined to identify an optimum strategy for PAFP delivery.

2.4 Work package 5 - Intervention implementation and monitoring

**Overall objective**
To implement and monitor the selected interventions.

**Specific objectives**
- To introduce the developed interventions into study sites
• To monitor the implementation of the interventions through a set of selected monitoring indicators and through site/supervision visits
• To evaluate the implementation process and provide assistance and recommendations if the implementation is hampered or delayed

This work package corresponded with the research Phase III and Phase IV. The proposed interventions were introduced to the study sites and the research team developed a series of strategies for implementation and monitoring.

2.5 Work package 6 - Intervention evaluation
Overall objective
To measure the overall effectiveness of the interventions on reducing unwanted pregnancy and repeat abortion.
Specific objectives
• To evaluate the effectiveness of the interventions; and
• To evaluate the health system determinants of effective implementation.

This work package was conducted after the intervention implementation. It provided a scientific documentation of the impact and the effectiveness of the interventions through qualitative evaluation and quantitative analysis.

2.6 Work package 7 - Bridging the gap between research and policy
Overall objective
To develop and implement a strategy that aims to bridge the gap between research and health policy and decision making.
Specific objectives
• To bridge the gap between research and policy by involving national and local policymakers and authorities in the research process from the beginning of the project.

This work package corresponded to the whole research period. The project established a Policy Advisory Board (PAB) which consisted of political stakeholders (national and district level), scientific experts and health managers in China. They were involved in the intervention design and informed about the study progress and results. The PAB members met at the beginning of the project and twice in each project year. Through the meetings, advice on adequacy of the research related to health needs in China, dissemination and use of project results, ethical issues, and translation of research into policy relevant recommendations were given to the researchers. Meanwhile, the project consortium continued tracking potential policy developments at the national level to judge whether these were coherent with the project's findings. Through much discussion with policymakers, further barriers were identified to translating research findings into policy, to promote and facilitate relevant recommendations.

2.7 Work package 8 - Dissemination of the research progress and results
Overall objective
To ensure dissemination of the research progress and final results to health policy-makers at different levels of government, health managers, service providers and the scientific community in China and beyond to the international scientific community.
Specific objectives
• To inform stakeholders and the public on a regular basis about the progress of the research;
• To create and use opportunities to share the project progress and results with policy and decision makers, health managers and service providers by organizing seminars and/or developing policy briefs and executive summaries of the research progress and findings; and
• To disseminate the knowledge acquired through the research to the national and international scientific community.

This work package ran through the whole project period. From the start of the project, a communication strategy was developed and implemented. Information on the concept, objectives and progress of the research project were actively distributed on a regular basis. A project-specific website was designed for this purpose. Other ways to disseminate information were partner websites, specific websites in Chinese for women and healthcare providers, and regular newsletters, posters and leaflets. Dissemination activities addressed all stakeholders, including local communities.
As an outcome, the publication and dissemination of research progress and results of INPAC have not only addressed a scientific or technical audience but also policymakers at district and national levels in China, Europe and worldwide.

2.8 Work package 1&9 - Project management
Overall objective
To ensure a smooth roll-out of the project, a timely reporting to the EC and good communication between partners.
Project Results:

3. Main S&T results/foregrounds
3.1 Work package 2 - Critical review of China policy and practice of family planning
A systematic search for relevant policies and literature was conducted. Based on a set of criteria, all the citations and full texts were screened and appraised. Relevant information was extracted. The detailed search process was documented precisely in the delivery report D2.1 including: a flowchart of selected policies; FP and PAFP services status screening; the process of screening factors that influence FP and PAFP services provisions, utilisation and quality of care; and a literature section of the effects and lessons of integrating PAFP into existing health systems worldwide. Following a series of strict criterion, a total of 18,538 titles and abstracts were retrieved. Then, after looking at the titles and abstracts, 790 full text documents were selected and screened. After the implementation of searching and screening, findings from the included policies and studies were reviewed and analysed using a textual narrative approach for synthesis. Finally, a total of 210 documents were reviewed, including 111 Chinese policy, 71 Chinese, and 28 English literature articles. The following highlights the most important findings and results of the critical review of Chinese policy and practice of family planning literature.

① The Chinese national FP program advocates a ‘One Child Policy’ in general, while allowing more children on specific conditions stipulated by national and local FP law, rules and regulations. Several social security policies were developed to support this basic national FP policy. Advocacy of FP covers both married and unmarried populations aimed at enhancing informed choice and reducing abortion rate. Free technical services mainly focus on married couples, while the relevant policy for unmarried youth and migrant populations is not fully developed. Legal abortion policy and other relevant welfare policies are to protect women's health of those who undergo abortion. Policy on PAFP is absent.

② Over the past 40 years, FP programs in China have played a major role in raising the prevalence of contraceptive use. The contraceptive prevalence rate for married women was 89.3% in 2011, but the rate for unmarried women is unclear due to lack of population-based data. The repeat abortion rate is high, from 19.0% to 57.9%, depending on the population under analysis. The reason for abortion is mainly no use of or lack of access to contraception, and the rate is from 38.7% to 64.9%. Unmarried women, migrant youth, and adolescents are the main underserved populations.

③ Worldwide strategies for integrating PAFP into existing health systems include: external funding to programs, training of trainers (TOT) and on the job training of service providers, expanding the range of contraceptive methods available, improving data collection—including cost analyses in a few countries, service guidelines provided to health professionals, supportive supervision at program sites to ensure quality of care, and leadership from governments to strengthen PAC/PAFP services through revising or developing new national policies. Effects of intervention programs include decreased abortion rates, improved modern contraceptive use, improved contraceptive acceptance, improved women's knowledge on sexual & reproductive health, and women's high satisfaction rate with receiving PAC/PAFP services.

Based on the review of relevant policies, a discussion was held on several crucial topics related to: FP and PAFP policy in China; the present status and influencing factors associated with provision, utilisation and quality of FP services in China; the present status and influencing factors associated with PAFP services in China; and lessons learned from integrating PAFP into existing health systems worldwide. Finally, we have made recommendations for the foregrounds of the research. Each study was conducted within a cultural, legal, social, and religious framework. There can be no single set of best practices to put forward as a model to improve PAFP services in China. The Chinese health reform in the early 1980s resulted in a dramatic decrease in the central health budget. Government subsidies to providers accounted for a small and decreasing share of provider financing, now ranging from just over 10% in the case of township health centers, to less than 5% for county hospitals (MOH, 2004). Therefore, health systems became heavily dependent on fee-for-service financing. Given the situation that China has a complete infrastructure for family planning services, high levels of contraceptive prevalence—especially among married women, governmental attention to quality of services, and problems in health financing, these areas should be considered in future INPAC intervention strategies.

① Supportive policy environment for PAFP
Currently, abortion-and contraception-related policies sporadically appear in different FP laws and regulations. Though a ‘Post-abortion family planning service guideline’ has been published by CSFP (CSFP, 2011), laws and regulations on PAFP are still absent at all levels of government. Therefore, government departments and authorities have paid little attention to this topic. Supportive guidelines should be adopted by the intervention program. Under the leadership of CSFP in WP5, continuous technical and administrative support should be provided to the 90 hospitals. Hospital managers should be involved in the planning stage of the program, and dialogue mechanisms should be created between CSFP and hospital directors to facilitate idea exchange and consensus-building. Apart from that, unmarried youth and floating populations should be included in the free FP programs to improve the quality of care. The national government should optimize and complement regulations related to abortion, contraception and PAFP. The state should increase capital investment to FP services and gradually expand the scope of free FP service categories.

② Capacity building for service provider
Comprehensive training of PAFP for all cadres of service providers including physicians, nurses and midwives should be considered a priority. Trainings should focus not only improving service providers’ knowledge and attitudes, but their skills of counseling and interpersonal communication (especially in interactions with adolescents and youth). In addition, regular refresher training courses could be
provided for all staff involved in PAFP services, throughout the INPAC intervention program.

1. Continue efforts to improve PAFP service delivery
Counseling service delivery guidelines should be developed or adapted based on national policy and standards. At the same time, it should incorporate the most updated evidence-based practices. Guidelines are also essential to ensure best supervision and management practices.

Systems and mechanisms beneficial to the performance of PAFP should be established. Health facilities should have special posts to provide post-abortion services. To ensure service providers have sufficient time to offer high-quality consultation, an incentive system could be set up. Considering the extra workloads caused by the INPAC program, incentives to supplement the hospital are suggested based on the calculation of additional work posts. Finally, involving PAFP services in the assessment of excellent model health services and establishing detailed indicators to promote the performance of PAFP services, is recommended.

The period either pre-and/or post-abortion is the most opportune time for intervention. Group education combined with individual counseling by a trained nurse/midwife could be used to provide women and their partners with accurate and complete information and help them to make informed choices. It is also essential to encourage male participation in counseling and joint decision-making in post-abortion contraception strategies. Brochures containing practical information regarding family planning/birth control could be distributed at the waiting area of outpatient clinics. A hotline and/or cellphone short-message-service could be set up to provide continuous support and deliver useful information so as to improve contraceptive compliance. In addition, PAFP services could also be improved by working closely with community health service providers to provide active, rather than passive services (i.e. offering booking appointments and door-to-door services, etc).

2. Ensure the accessibility of multiple contraceptive supplies in hospitals
A broad choice of methods should be available to women before and immediately after abortion, and at follow-up visits. Partnerships with local populations & family planning commissions should be established to ensure free contraceptive supplies from the national family planning system.

3. Good records keeping at hospitals
Standard record keeping forms, either electronic or paper-based, should be designed for the intervention program. The ability to correct/modify/augment entries (notes, documents, etc.), while maintaining and preserving the original entry, must be made available and allow the author to indicate the type of change (i.e. a correction to erroneous information and the reason). In order to increase follow-up rate, the hotline and/or cellphone short-message-service could be used to collect relevant information and remind women when to return for follow-up.

4. Adequate and regular supervision and monitoring
To ensure successful implementation of the INPAC intervention program, normative service procedures should be formulated and effective supervision mechanisms should be established. Both at the hospital and INPAC program level, coordinators to provide regular supervision should be established. The hospital coordinator's supervision will focus on the quality of PAFP services, record keeping and contraceptive supplies. The program coordinator's supervision will focus on tackling the problems occurring during implementation. The successful Chinese FP program has built a complete infrastructure for family planning services, reached a high level of contraceptive prevalence—particularly among married women, and made governments pay more attention to quality of services. These provide a unique context for PAFP policy development and the possibility for PAFP service provisions. Yet, based on the current situational analysis, no routine and standard PAFP services exist at any level of hospital institutional organization for PAFP services. It is suggested that experiences from other countries may influence future INPAC intervention programs, including: supportive policy environments for PAFP; capacity building, focusing on mid-level service providers’ knowledge and skills; continued efforts to improve PAFP service delivery in terms of developing PAFP counseling service guidelines; establishing special posts for PAFP; using incentive mechanisms to improve health professionals’ performance and promote informed choice; improve accessibility of multiple contraceptive supplies in hospitals; promote good record-keeping for monitoring and follow-up using modern communication methods; and, encourage adequate and regular supervision and evaluation at both program and hospital levels.

The WP2 review provided essential information for the detailed situation analysis (WP3), the results of this review have been used in the intervention design (WP4).

3.2 Work package 3 - Detailed situation analysis
The preliminary findings from the detailed situation analysis of the current health system and social context for integrating PAFP into existing abortion services is presented in two parts below.

3.2.1 Qualitative results
Following strict selection principles at various areas of socio-economic development in China, in-depth interviews with policy makers, health providers and health users were conducted. These interviews covered different social groups, including unmarried and married women and men, urban residents, and rural-to-urban migrants. Six main themes, identified from the data, are detailed below:

1. Young people's sexual behaviour, access to FP and negative social consequences of abortion. Whilst pre-marital sex is recognised as
an emerging social norm, there are still some negative views and social consequences attached to pre-marital sex and abortion for women under 20 years, in particular. Despite the changing social context, access to reliable and affordable family planning information, counselling, and services for young, unmarried people is acknowledged by most stakeholders to be limited and inadequate. This effectively limits their access to all but a few FP options (such as condoms, and emergency contraceptives). Whilst abortion service providers did not see themselves as ‘unfriendly’ towards young people, services are not perceived as oriented towards their needs.

① Access to FP by rural-to-urban migrants (‘floating population’). Many service stakeholders perceived FP services to be equally accessible to rural-to-urban migrants, permanent-rural, and urban residents. However, some service stakeholders perceived the difficulties for migrants in accessing services, and migrants themselves often seemed unaware of their entitlements to free services.

② Limited FP information and choices for most clients in FP and PAFP services. The data revealed the relatively limited choice of modern FP methods effectively available to the majority of women and men. The problem is particularly acute for young, unmarried people and those who do not yet have children. A range of reasons for this emerged, including: the historical focus of the Family Planning system on long-acting methods for married couples; the relatively limited choices available within this context (generally, a focus on IUD-use only emerged); some debate about the extent to which IUD use is ‘required’ under interpretations of current FP policy; the cultural aversion to hormonal products such as oral contraceptives; and the barriers to/limited promotion of condom use (discussed below). The data illustrated relatively high levels of anxiety towards contraceptive methods-including widespread concerns about side-effects (particularly from oral contraceptives, but also IUDs), effects on future fertility, and reliability. The context for this appears to be very limited, person-centered counselling on contraceptive methods which explain the relative advantages and disadvantages of a range of modern methods in the specific situation of the individual client. Where PAFP services are provided, these services are generally ad hoc, limited in scope, and suffer from the same limitations as the wider FP system: limited choice and information, and person-centered counselling. Most clients would like to receive more in-depth, face-to-face pre- or post-abortion FP counselling and most would prefer this to be with doctors, specifically because they are most trusted. However, there is a range of preferences with regard to the timing (pre- or post-abortion) and methods/media.

③ Barriers to use of specific methods. The data revealed specific barriers to using different contraceptive methods that require attention in FP counselling. There were significant barriers to the consistent and effective use of condoms, which were largely related to male aversion to using condoms, coupled with their power to decide on use (or non-use), particularly amongst unmarried, sexual partners. Some uncertainty about correct condom-use was also identified. Furthermore, oral contraceptives were rarely perceived as a desirable contraceptive method. The study did not investigate these perceptions in depth, but the main concerns mentioned were generally related to the negative impacts on health due to the use of hormones and specific side effects, such as putting on weight and acne.

④ Multiple reasons for abortions. The data revealed a range of reasons for abortion, which included unintended pregnancy due to contraceptive failure, lack of contraceptive use, and inconsistent or incorrect contraceptive use. Decisions to terminate a planned pregnancy for economic or health-related reasons were also identified.

⑤ Service stakeholder perspectives on facilitators and barriers to PAFP: the importance of political support and resources. Several key facilitators and barriers to PAFP were identified, which centered on issues of political support, resources (human and financial), quality, and roles of different cadres and institutions. Political support and mandates for PAFP were perceived as extremely important to enable service delivery. Most service stakeholders expressed concern about the availability of both financial and human resources to deliver PAFP services. Concern was commonly expressed about how far doctors were able and willing to add PAFP services to their workload. Finally, financial incentives, at both the institutional and individual level within the overall framework of funding, pay and incentives, were generally perceived critically. Concerns about assuring the quality of PAFP services were also expressed- this included the need for more detailed clinical guidelines and standards, and a clear regulation structure.

Following the themes discussed above, several key implications were developed:

① Implications for intervention development and implementation
  • PAFP services need to be ‘youth-friendly’ to reflect changing sexual behaviour and norms.
  • There is a need to address barriers to accessing FP services for rural-to-urban migrants, including their entitlements to free services and the provision of information on their entitlements. A possible starting point could be to clarify current entitlements and to improve awareness of these amongst migrants.
  • Although face-to-face counselling with doctors is a key preferred method for receiving PAFP, this needs to be supported by facilitating access to reliable FP information through a range of means and media, including the internet, printed materials and possibly helplines where available.
  • PAFP counselling needs to aim to move towards a more client-centered approach that explores the individual context for the unintended pregnancy and aims to enable the client to take decisions to address these reasons, whilst providing appropriate technical information on the advantages and disadvantages of different methods for the individual client/couple.
  • The development and implementation of PAFP services needs to consider how to address service stakeholder concerns, including: 1) Political support and mandate 2) Appropriate incentives, such as the inclusion of PAFP service provision in institutional and individual bonus/income assessment criteria; 3) Inclusion of PAFP in routine work evaluation; 4) Appropriate training of providers in
both technical knowledge and client-centered counselling/communication skills (including skills in providing youth-friendly services); 5) Making an explicit case for the value of doctors’ roles in proving PAFP from a public health perspective; 6) Development of clear clinical standards and supervision mechanisms; 7) Development of appropriate educational and promotional materials (targeted at different social groups, such as young people); 8) Consideration of how to address challenges to reaching different social groups (such as rural-to-urban migrants); and 9) The need for a sufficiently wide range and choice of contraceptive methods.

 Implications for Intervention evaluation

• There is a need to develop a detailed 'theory of change' for the intervention to guide the evaluation. This will enable the design of an evaluation to assess whether each aspect of the intervention necessary to achieve change has been delivered. The theory of change needs to incorporate the wider structural concerns of service stakeholders including political support, resources, quality and roles of institutions and individuals.

• In the qualitative process evaluation of the intervention there is a need to focus on understanding the experiences of specific population groups such as young, unmarried people, rural-to-urban migrants, ethnic minorities, married people with and without children, since their needs and barriers to effective contraceptive use vary widely.

• In the qualitative process evaluation, there is a need to assess not only what services are provided but also how they are provided – that is, are they providing client-centered and youth-friendly counselling? Observations of both training and clinical practice are the ideal ways to conduct this evaluation, despite their practical challenges, which require discussion.

3.2.2 Quantitative component

The quantitative component of the situation analysis aimed to map provision and utilization of abortion services in China and to understand the practicability of integrating PAFP into existing abortion services at hospital settings, to guide intervention design. Quantitative data collection was carried out across 30 provinces in up to 10 hospitals per province. Data was collected through a variety of mechanisms: first, data on characteristics of pregnant women undergoing induced abortion within 12 weeks of pregnancy was collected using a register checklist. In addition, facility level data was collected on hospitals’ capacity to provide PAFP, including information on gynecological and obstetric services, human resources and FP service fees. Finally, a Knowledge, Attitudes and Practices (KAP) survey focusing on PAFP services among abortion service providers (doctors and nurses/midwives) was carried out in selected hospitals at different levels.

The main findings of the quantitative study were highlighted as follows:

• A higher number of women were registered for induced abortions in provinces with large populations or in provinces with high levels of socio-economic development. However, according to the analysis of factors associated with numbers of induced abortion, the number of induced abortions per woman was higher in underdeveloped regions.

• Across six types of hospitals, there were fewer abortions in Level One general hospitals and family planning services station (FPSS), in comparison with Level Two and Level Three hospitals. Among Level Two and Level Three hospitals, Level Three (Maternal and Child Hospital (MCH)) hospitals had the highest numbers of induced abortion, partly based on the department setting and number of medical staff that these had available.

• Poisson regression analysis identified the following factors as associated with higher numbers of abortions among individual women: local urban residence (as compared with local rural residence); non-professional occupation (as compared with professional occupation); lower levels of education; and currently married (as compared with unmarried, divorced and widowed).

• On the whole, PAFP provision is carried out by medical staff and the data collected suggests that service providers have positive intentions and attitudes towards the implementation of PAFP services but challenges reported by staff included insufficient knowledge of PAFP and technical guidelines. In addition there are broader challenges for staff including heavy workload, time constraints and lack of available education, counselling sites and health education materials.

As a further step, the study collected many recommendations, which have been taken account in developing the results of the situation analysis as baseline for WP4 (intervention design) and WP6 (intervention evaluation).

• The intervention should include underdeveloped regions and provinces which have a high frequency of induced abortion per woman, and not be limited to developed regions with large numbers of induced abortion and provinces with large populations.

• Level One general hospitals are challenging settings and have much lower numbers of abortions so are not recommended as intervention settings. Equally, there are limited numbers of Level Three MCH hospitals in each province and these may not provide such representative examples for scaling up the intervention. The remaining three types of hospitals (i.e. Level Two general, Level Two MCH and Level Three general) could be adopted as main hospital ‘types’ for the intervention as there is greater potential for scaling up the intervention based on experiences in these settings. As general hospitals and MCH hospitals have different characteristics, these should be considered carefully when selecting participating hospitals for the intervention.

• To increase the capacity of medical staff, interventions to service providers should include development and implementation of PAFP technical guidelines, development of core information for health education and counselling, and special-topic, on-site training and continuous online instruction to medical staff during the intervention.

• Effective promotion of PAFP services will depend on the level of support from decision makers in the government’s management
department and managers in the hospitals (directors or heads of the departments). Therefore, it is recommended that the intervention includes advocacy with decision makers and managers to get support from relevant leadership—such as setting up independent FP clinics, improvement of house arrangement and facility conditions, the reasonable establishment of new posts and changes in staff allocation, as well as the establishment of assessment, evaluation, and incentive mechanisms.

- More attention should be paid to providing appropriate consultation for women to assist them in using highly effective and long acting contraceptive methods through provisions of practical and effective health education and counselling.
- Finally, practical considerations for designing and implementing the intervention must be considered as there were considerable difficulties in data collection with the participating hospitals. Based on this experience, provincial level coordinators should be selected with care. Equally, with respect to the selection of hospitals, as well as using randomization principles, the capacity of the hospital to engage in scientific research should also be considered. Finally, qualified principal investigators in each hospital should be involved to assist with coordination and supervision.

3.3 Work package 4 - Intervention design tailored to local conditions

Based on the findings from the situation analysis and the existing post-abortion care (PAC) programs in selected hospitals in China, as well as the World Health Organization (WHO) guidelines on preventing early pregnancy and safe abortion (20-21), intervention packages were developed. These were tailored to local conditions with consideration of both scientific and practical feasibilities, as the expecting result of work package 4.

3.3.1 Intervention packages and trial arms

The trial includes three-arms: two intervention groups and one control group.

**Intervention group 1: Standard PAFP Package**

1. **Training of abortion service providers and managers**
   - Target population: all PAC service providers (doctors or nurse) and department/hospital managers.
   - Contents of the training: Family planning counselling knowledge, delivery of contraceptive services (e.g. OCP, intra uterine device - IUD, implants), and youth-friendly (no judgement) and client-centred counselling/communication skills. Standard service guidelines and PAFP procedure will be developed and introduced.
   - Modes of the training: The appropriate training materials (e.g. interactive video and booklet, group face-to-face training, workshop, remote/online training courses and all training materials at project website) will be developed in local language.

2. **Providing relevant Information, Education and Communication (IEC) to women and their partners by abortion service providers**
   - Target population: All women seeking abortion at the participating hospitals.
   - Contents of the IEC: Basic knowledge on reproductive health, information on the prevention of unintended pregnancy and sexually transmitted diseases, health risks of repeat abortion, the need to start contraception immediately after induced abortion and the management of contraceptive failure and emergency contraception (EC), as well as the different available contraceptive methods and their advantages / disadvantages.
   - Modes of providing the IEC: Written materials, video or audio recording or group counselling at waiting (pre-abortion) and resting (post-abortion) areas.

3. **Providing individual counselling to women (and their partners) at pre- and post–abortion by abortion service providers**
   - Women and their accompanying partners will be invited to participate in a face-to-face counselling in a recovery room in an inviting environment, service providers are non-judgmental and considerate in their dealing with women (in the way of client-centered/ youth-friendly and personalized counselling). Service providers will understand the reason of induced abortion and provide the personalized recommendations and technical support to prevent future unintended pregnancy. This session will also provide psychological counselling accordingly and suggest referral for those who need it.

4. **Offering modern contraceptive methods (e.g. OCP, IUDs, condom - according to the feasibility in participating hospitals) to the women immediately after the abortion.**

5. **Continuous PAFP service/follow-up counselling**
   - Continuous PAFP services will include visits or phone calls to control the complications of abortion within 4 weeks after (such as infection, bleeding).
   - Phone, SMS, or face-to-face counselling for those who visit the hospitals at 12 and 24 weeks after the abortion to meet women's needs on FP will be provided.

**Intervention Group 2: Standard PAFP Package +Financial incentive to service providers**

- Beside the standard PAFP Package used in intervention group 2, the financial incentive to service providers will be proposed to strengthen their motivation and ensure quality of care.

- Related to the inclusion of PAFP service provisions in institutional and provider's assessment criteria, bonus or income to doctors
or nurses, job promotion etc. This accountability mechanism will be integrated into existing hospital management systems, and might vary among participating hospitals. This intervention will be achieved through the “advocating hospital’s managers and supervision mechanism.”

Group 3: Control group
• Care given as usual without any intervention.

The implementation of intervention packages started from April 01, 2014. All participants were followed up at month 3 and month 6, after their enrollment. The intervention implementation was supervised and monitored by provincial coordinators in each province under direction of the WP5 leader of CMA team, to keep a high quality control.

3.3.2 Outcome indicators
Primary and secondary outcome indicators are drawn below:
① Primary outcomes
1) Unintended pregnancies- including clinical or self-reported unintended pregnancies at the time of follow-up interviews.
2) Repeat induced abortions- induced abortion and ongoing, unwanted pregnancies among all follow-up women during the follow-up period.
3) Use of modern contraceptive methods- including OCP, IUDs, implants, male/female condoms, others barrier methods (such as diaphragms, the cervical cap and spermicides), emergency contraception, and sterilisation (male/female) during follow-up period.
② Secondary outcomes
1) Immediate contraceptive uptake: including IUD, OCP, sterilization, injection, implant, etc.
2) Contraceptive practices: use of any contraceptive methods, including condom, natural methods (periodic abstinence or withdrawal), IUDs, OCP, EC, sterilization, injection, implants, diaphragm, spermicide, etc. during follow-up period.
3) Consistent use, correct use, or both consistent and correct use of condoms among condom users during the follow-up period.
4) Changes in knowledge and attitudes about the risk of unintended pregnancies.
5) Morbidity/mortality related to abortion
6) Sexually transmitted infections (including HIV)
7) Satisfaction regarding abortion and family planning services.
8) Post-abortion family planning services received during abortion services among all participants, including group education, individual counselling, free contraceptives and referral to other family planning services.
9) Pregnancies among all follow-up women during the follow-up period.
10) Reported direct costs related to the abortion
3.3.3 Development of tools of the intervention
• Develop questionnaires for the intervention: structured questionnaires for clients, service providers and the institutes were developed by CSFP with close collaboration of UG-ICRH for the scientific issues and with inputs from other partners. The WP2 and WP3 findings, as well as the project outcome indicators, were considered in the development of the questionnaires. The questionnaires for women were administered at four time-points: pre-intervention (M0), post-intervention in month1 (M1), month 3 (M3) and month 6 (M6). The questionnaires for service providers and institutes were administered at two points in time: in M0 and in M6. All questionnaires were discussed and approved within the consortium.
• Development of the Informed Consent Forms (ICFs): ICFs were developed for the participating clients and service providers.
3.3.4 Ethical clearance and trial management
Ethics approvals for intervention implementation was obtained from relevant local and national research ethics committees. This information was made available to participants (including hospitals and individual woman participants) in the form of leaflets. The individual patient consent was sought. The study also obtained the ethical approval at the international level from the ethical committee of Ghent University, Belgium.
• Trial Steering Committee (TSC)
The trial Steering Committee was comprised of the INPAC project management team (PMT). The specific tasks of the Steering Committee were: to approve the main study protocol; to approve necessary changes in the protocol based on considerations of feasibility and practicability; to resolve problems brought to it by the NCo team; to approve study reports and papers for publication; to ensure the implementation in compliance with the protocol (WP4).
• National Co-ordination (NCo)
The trial was managed by CMA-CSFP team, the WP5 leader. The responsibilities of NCo included the following: Identification of the eligible hospital listings; Recruitment of participating hospitals; Where relevant, translation of the protocol and the other appropriate documents into local language(s); Distribution and supply of data collection forms and other appropriate trial documentations to the provincial coordinators; Field visits for monitoring the study progress and data collection process; Data collection (via the provincial co-ordinations) and management; Data entry, except where provincial/hospital team prefer to transfer the electronic data, and data
• Provincial Co-ordination (PCo)
  The responsibilities of PCo included: Recruitment of participating centres; Distribution and supply of data collection forms to each hospital and other appropriate trial documentations; Linking between NCo and HCo data collection, cleaning, and quality control.

• Hospital Co-ordination (HCo)
  A local medical doctor and/or a local midwife/nurse or 1-2 medical doctors were appointed as co-ordinator(s) in each participating hospital by NCo. The responsibilities of the HCos were: Data collection at the three time points and be the first line of data quality control; Be familiar with the trial; Liaise with the National/provincial Co-ordinating centre; Ensure that all staff involved in the study are informed about the trial; Ensure that supplies of data collection forms are always available, that they are correctly completed and returned to the National Co-ordinating centre in a timely manner, and to deal with any queries arising; Facilitate other aspects of local collaboration as appropriate; Make all data available for verification, audit and inspection purposes, as necessary; Ensure that the confidentiality of all information about trial participants is respected by all persons.

3.4 Work package 5 - Intervention implementation and monitoring

3.4.1 Implementation plan
  An implementation plan for the intervention implementation, as well as the tools for data collection (the questionnaires), were developed. According to the WP4 intervention plan, a total of 90 hospitals from 30 provinces/municipalities (except for Tibet; 3 hospitals for each province) were selected for the intervention study. These selected hospitals was randomly allocated to the following three groups (30 hospitals for each group):
  • Intervention group 1: to provide standardized PAFP services
  • Intervention group 2: to provide standardized PAFP services + additional incentives for service providers
  • Control group: to provide abortion and FAFP services pursuant to the original service flow of the hospital

  Specific interventions involved the following six aspects, with interventions 1 to 5 applied to intervention group 1 and all interventions (1-6) applied to intervention group 2:
  • Pre-intervention training
  • Provide abortion-related group IEC, counselling and information services for women having induced abortion and their male partners
  • Provide personalized counselling services for women having induced abortion and their male partners
  • Provide contraceptives and health education materials before the departure of women having induced abortion
  • Provide post-abortion counselling and follow-up survey services for women having induced abortion

3.4.2 Monitoring plan
  The monitoring plan was developed by the FU team, a two-level monitoring strategy (national and provincial level) was defined to ensure the quality of interventions and the quality of the data. These documents were further discussed and approved by the consortium, followed by a qualitative study to evaluate the procedure of intervention.

3.4.3 Development of training strategies and materials
  The training plan on PAFP, with a focus on INPAC intervention packages, and training materials were developed by the NRIFP team, which has a rich experience in post-abortion care training and research in China. A Training of Trainers workshop was conducted, the trainees included provincial coordinators, the health managers and service providers from the participating hospitals. These trainees were responsible for the internal training of other service providers in their hospitals. The training workshop was implemented as soon as the participating hospitals had been selected and randomized to each of the three arms of the trial. Post-training tests was conducted to evaluate the quality and effects of the training.

3.5 Work package 6 - Intervention evaluation

3.5.1 Qualitative evaluation
  Qualitative evaluation implemented two evaluation methods in intervention hospitals to evaluate the process of intervention implementation:
  • Semi-structured interviews with abortion service users within the intervention period; the male partners of service users; service providers and service managers;
  • Qualitative observations of group education and individual counselling with service users and their partners at intervention hospitals.

  As main findings, the analysis of the data identified two major themes: first, knowledge was acquired about the systems implications
PAFP provision, including practical and logistical issues; and second, knowledge was acquired about the nature of the provider-client communication and relationships and the opportunities and challenges for successful PAFP. With regard to the first theme, the findings highlighted a number of key aspects of how PAFP provision functioned during the intervention including 1) survey logistics; 2) approaches to staff development, including training and supervision; 3) the heterogeneity in availability and approaches to managing human and other resources; and 4) important drivers of implementation and change. The second section focuses some key aspects of the relationships and communication between providers and clients, and highlights 1) the spatial, temporal and emotional context of the PAFP interactions; 2) gendered aspects of provider-client and couples relationships; 3) trust, authority and paternalism in the provider-client relationship; and 4) provider communication strategies and clients’ agency and self-efficacy.

Systems implications theme

The importance of managers’ ‘decision space’ in implementing PAFP successfully

The Situation Analysis (WP3) identified the importance of a political mandate to ensure staff at all levels view PAFP as a requirement. The process evaluation findings (WP6) suggest that when there is an institutional mandate for PAFP to become ‘routine work,’ service managers employed a range of approaches to manage implementation. This implies there is a certain level of ‘decision space,’ allowing them to successfully adapt the intervention to their heterogeneous environments. This was particularly important for allowing managers to deal effectively with the increased workload represented by the intervention.

Staff development requirements for quality services

Whilst the providers interviewed were generally positive about the training offered by the INPAC project, and particularly the inclusion of communication skills, some also suggested that training should include more practice regarding communication skills and opportunities for discussion on how to deal with difficulties faced in PAFP. Supportive supervision may also be an important mechanism for extending opportunities for provider skills development and support beyond training. The findings suggest that there was an uneven approach to supervision for staff providing PAFP. Where supervision was implemented regularly, it was largely instrumental and focused on practical or logistical aspects of the implementation, rather than observing or moderating the quality of interaction between providers and clients. There was less emphasis on a process or quality approach to supervision, which would allow greater opportunity for improvement of counselling skills during the intervention.

There was also a need to ensure that training and supervision encourage staff to reflect on their own biases and become equipped to challenge ‘common sense’ social norms about contraceptive methods, in line with updated evidence.

The importance of taking into consideration individual and institutional values and motivations

There was a range of individual and institutional values and motivating factors reported by providers and managers. These helped them carry out their work effectively, sometimes under difficult circumstances: for example, within hospitals that were very busy. Motivating factors included ‘extrinsic’ factors such as status and money, but also some ‘intrinsic’ factors such as personal satisfaction, feelings of contribution and recognition. This implies that a range of factors contribute to the successful implementation of PAFP by staff and should be taken into consideration when designing and planning future incentive and supervision structures. Where financial incentive structures were ad hoc, they sometimes generated conflict between staff, suggesting the importance of integrating extrinsic incentives into routine systems of assessment and associated rewards—an implication which was supported by some managers.

Provider-client communication theme

Taking into consideration the emotional context of the encounter

Providers and clients reported a range of emotions such as embarrassment, fear and frustration, which characterised the ‘emotional’ context of the provider-client encounter. The challenges of negotiating these sensitive emotions during group education and individual counselling should be considered in planning services and communication strategies (including communication training). The timing of counselling in relation to abortion should be considered in minimising the emotional impact, since it impacted women’s ability to process information. In addition, the structure of service provision may exacerbate these emotional challenges in retaining information— for example, where group education is held (IE. in the corridor or waiting area outside the abortion surgery room and/or recovery room), or where counselling rooms are within proximity to the surgery room. This implies a need for guidelines on the use of separate, private spaces for education and counselling. In addition, the emphasis on negative messages about the ‘harm’ or risks of abortion should be re-considered as several participants reported that this was a barrier to their ability to listen to contraceptive information, particularly in this emotionally-charged context. There is evidence that negative messaging about harm in health promotion, particularly around sexual and reproductive health, can be counterproductive.

Care should be taken to communicate risk accurately and to ‘frame’ health promotion messages in ways that emphasise gains from health promoting behaviour and do not reinforce negative or judgmental social narratives.

Power relations and trust
We found that communication between providers and clients was often shaped by socio-cultural norms and power relationships – for example, between older and younger people and between ‘experts’ and ‘lay people.’ Some providers displayed paternalistic attitudes towards service users, who often internalised apparent judgements of their behaviour. Furthermore, it was discovered that gender norms influence both decision-making about contraception and the way women and men communicate (or not) with each other about contraception, which was often characterised by a strong sense of discomfort and embarrassment. This was also reflected in the way that women were found to experience greater stigma about unintended pregnancy (attributed to ‘carelessness’), as well as men's refusal to countenance permanent methods of contraception. These findings demonstrate how power relations subtly influence communication between providers and clients, and between spouses, and should be taken into consideration when designing PAFP training and supervision. The challenges faced in communicating with young people, particularly young migrant workers, suggests the importance of identifying alternative approaches to reaching this group with information and opportunities to have their questions answered in a more ‘youth-friendly’ way- perhaps by including social media-based and/or peer approaches, which have been found to be effective in other contexts.

Client centred approaches: facilitating client autonomy and shared decision-making

Generally, provider skills to build client autonomy and facilitate shared decision-making need strengthening, and further training and supportive supervision around these skills is required. There were a small number of cases where women demonstrated autonomy in decision-making and where providers practiced more client-centred approaches. These cases, while few, may provide important clues as to how counselling could be improved in the future. However, facilitating client-autonomy and developing shared decision-making requires sufficient time for the counselling encounter, which is severely limited by workload in some hospitals. Additional human resources are needed to enable this approach in such contexts.

3.5.2 Quantitative evaluation

Quantitative evaluation implemented effective evaluations of the cluster randomised controlled trial to determine whether integrating post-abortion services in hospital settings increased contraceptive use and decreased repeat abortion rates. Ninety hospitals from 30 provinces in China were randomised to the three arms of the study stratified by province. In each province, three hospitals were
allocated to intervention 1 group, intervention 2 group or control group. Data was collected at four time points (month 0, month 1, month 3, and month 6) during the second reporting period for a total of 17,235 women. Next, a series of statistical analyses, using primary and secondary indicators to evaluate the effect of the intervention, was performed.

- The primary indicators refer to unintended pregnancies, repeat induced abortions, use of modern contraceptive methods.
- The secondary indicators refer to the total number of pregnancies, use of any contraceptive practices, changes in knowledge and attitudes about the risk of unintended pregnancies, satisfaction regarding abortion and family planning services, and post-abortion family planning services received.

For subsequent evaluations, data pre-processing and quality control as a foundation of further evaluation was conducted. After that, descriptive analyses were performed using frequencies (percentages) for categorical variables and means (standard deviations, SD) or medians (interquartile ranges, IQR) for continuous variables, as appropriate. A three-level random intercept model was used to estimate the effects of intervention using a generalised linear mixed model. The level of significance was set at 5%. Therefore, it was investigated whether integrating post-abortion services in hospital setting increased contraceptive use and decreased repeat abortion rates and how. Through the statistical analysis, we observed:

1. **INPAC intervention could decrease unintended pregnancies rates.** The unintended pregnancy rate was 3.22% in the control group, 1.18% in the intervention 1 group and 1.16% in the intervention 2 group at the end of survey. Based on the multi-level model, there was no significant difference in the rate of unintended pregnancy between the intervention group and control group. However, based on the generalized linear model, the unintended pregnancy rate decreased significantly in interventional groups.

2. **INPAC Intervention could decrease repeat induced abortion rates.** The repeat induced abortion rate was 1.60% in the control group, 0.90% in the intervention 1 group and 0.82% in the intervention 2 group at the end of survey. Based on the multi-level model, there was no significant difference in the rate of repeat induced abortion between the intervention group and control group. However, based on the generalized linear model, the rate decreased significantly.

3. **INPAC Intervention could increase the use of modern contraceptive methods.** The proportion of women who use modern contraceptive methods was 74.57% in the control group, 80.42% in the intervention 1 group and 81.39% in the intervention 2 group at the end of survey. Based on the multi-level model, there was no significant difference in the proportion of women use modern contraceptive methods between the intervention group and control group. However, based on the generalized linear model, the rate increased significantly.

4. **INPAC Intervention could decrease all pregnancies rates.** The total pregnancy rate was 4.38% in the control group, 1.88% in the intervention 1 group and 2.15% in the intervention 2 group at the end of survey. Based on the multi-level model, the total pregnancy rate decreased significantly in the intervention 1 group compared with the control group (adjusted odds ratio = 0.53 95% confidence interval: 0.29-0.99 P = 0.045). There was no significant difference in the total pregnancy rate between the intervention 2 group and the control group. However, based on the generalized linear model, the rate decreased significantly.

5. **INPAC Intervention could increase the use of any contraceptive methods.** The proportion of women who use any contraceptive methods was 76.65% in the control group, 78.96% in the intervention 1 group and 81.44% in the intervention 2 group at the end of survey. Based on the multi-level model, there was no significant difference in the proportion of women using any contraceptive methods between the intervention group and control group. However, based on the generalized linear model, the rate increased significantly.

6. **INPAC intervention could increase the proportion of women who contraceptive knowledge improved at the end of survey.** The proportion of women whose contraceptive knowledge improved at the end of survey was 65.09% in the control group, 72.01% in the intervention 1 group and 72.09% in the intervention 2 group. Based on the multi-level model, there was no significant difference in the proportion of women whose contraceptive knowledge improved between the intervention group and control group. However, based on the generalized linear model, the proportion increased significantly.

Briefly, the statistical analysis verified that INPAC intervention decreased: (1) unintended pregnancies rates, (2) repeat induced abortion rates, (3) all pregnancies rates; as well as increased the following: (1) the use of modern contraceptive methods, (2) the use of any contraceptive methods, (3) the proportion of women whose contraceptive knowledge improved at the end of survey in the intervention hospitals. A detailed explanation of each statement above was reported in the deliverable file of D6.2.

3.6 Work package 7 - Bridging the gap between research and policy

3.6.1 PAB meetings

As a crucial implementation method to promote and facilitate the translation of the research results into policy relevant recommendations, Policy advisory board (PAB) was established consisting of political stakeholders (national and district level), scientific experts and health managers in China. During the INPAC research project, four PAB meetings were organised to discuss crucial situations and challenges occurring in the intervention design as well as the study progress and results. PAB meetings were recommended by research partners and included representatives of NGOs and the national hospital evaluation committee, provincial FP committee members and managers from hospitals of different levels. The PAB experts gave advice on the (political) use and policy-relevance of the project results, the dissemination of the project results to a broad audience of health providers and managers, linking research results to the lead-users (policy-makers, health managers, healthcare providers) and end-users (consumers, citizens).
3.6.3 A strategy of translating knowledge into action

Based on former analysis, it is both essential and possible to translate INPAC research results into action. At the end of the research process, a strategy was developed for translating knowledge into action. On one hand, this can improve PAFP standards in China and produce favourable social effects when firmly implemented, while protecting women of childbearing-age reproductive health rights. On the other hand, policy translation recommendations can be provided for future follow-up studies and similar intervention studies.
Throughout the four years of the INPAC project, policy translation work was conducted. However, due to limited research on policy translation, especially research and practice on policy translation for specific projects in China, INPAC policy translation was conducted in trial and error. Fortunately, with the efforts of seven teams at-home and abroad, policy translation obstacles were identified and strategies developed from the preliminary framework. Finally, on both the national and local levels, within both policy formulation and policy translation perspectives, PAFP services are being promoted in China. Though setbacks exist, much experience was gained for conducting policy translation in China. We would like to share these experiences with policymakers, researchers, medical institution managers, and healthcare workers to accomplish the translation of INPAC project outcomes in China, both now and prospectively.

3.6.4 Policy recommendations

A series of specific policy recommendations made by INPAC group have been documented in the delivery report D7.3. Here, the most crucial results of policy recommendations at national level and provincial level are highlighted:

INPAC Policy recommendations at national level

① Recommendations on relevant regulations and guidance

• Instead of the current content of the existing FP counselling services, all people of childbearing-age within a special period (in postpartum and post-abortion period) should be involved, officially.
• Basic maternal healthcare departments should include a Department of Adolescent Healthcare, aimed at preventing unintended pregnancies and providing counselling services for abortion
• Basic FP technical service departments should include a Department of FP Counselling and Instruction, aimed at providing care, education and follow-up services after FP related operations.

② Recommendations on PAFP financing:

• PAFP counselling service fees should be included into the financing scheme of both hospitals and clients.

③ Recommendations on human resources for PAFP

• PAFP service providers' capacity building should be prioritized.
• PAFP service providers' counselling skills should be improved, and counselling content and methods should be standardized.

④ Recommendations on PAFP information

• Integrate PAFP information into existing abortion care information systems for further evidence to policy-making.
• Information should include PAFP uptake methods, characteristics of those receiving repeat abortions, the reasons for unintended or unplanned pregnancy, etc.

⑤ Recommendations on PAFP methods

• The promotion and application of long-acting contraceptives (LAC) should be prioritized. Social marketing mechanisms should be used in cooperation with other parties.
• The types of contraceptives offered should be more diverse.
• The quality of contraceptives should be improved. Free contraceptives should be more available to hospitals and recommended to clients based on their needs.

⑥ Recommendations on PAFP counselling services and follow-up

• Core, contraceptive educational information should be provided by professional institutions or departments;
• Local PAFP service delivery points should develop and provide information in a format relevant to the different populations of users.
• The prevention of unmarried, youth abortions and repeat abortion is of great importance. Sexual health education for adolescents should be carried out as early as possible.
• Sexual health education for men and their involvement in PAFP should be prioritized.
• Information communication technology's (ICT) role in PAFP education and follow-up should be explored further, based on the pilot in INPAC.

⑦ Recommendations on PAFP performance management

• Performance assessments and incentive measures should be considered in PAFP services.

INPAC policy formulation and achievements in provincial level

① INPAC policy formulation and achievements in Chongqing Municipality

This criterion made PAFP services one of the technical standards of Chongqing FP services. INPAC outcomes succeeded in a provincial health policy translation. This was the first INPAC policy translation achievement at the provincial level in China. Currently, PAFP services was included in appraisal standards for maternity and child hospitals at all levels in the Chongqing province for the short term. Finally, experience and references for policy translation on the national level was also produced. The method and content of INPAC's success in Chongqing has the possibility of being adopted by other provinces and cities to formulate similar regulations in the future.

② INPAC policy formulation and achievement in Hubei Province

INPAC's policy formulation and achievements in the Hubei Province will be included in the future amendment of Hubei Province Family Planning Regulations, based on INPAC research outcomes and training for FP management leaders.
The final formulation of INPAC policy translation - Policy brief

As a final output of INPAC policy translation, the policy brief documented the background, development and essential policy recommendations based on INPAC implementation experiences and expert opinions:

① A set of national level policies on PAFP services is needed to scale up the service to reduce unintended pregnancy and repeat abortion nationally.
② An improved system for monitoring PAFP services in healthcare facilities should be developed.
③ Strengthening the capacity of service providers, especially on counselling skills, is needed.
④ Provision of multiple and free contraceptive methods, especially long-term contraceptives, in health service delivery points is required.
⑤ Service providers should pay more attention to effectively communicating with young, unmarried women and their partners.
⑥ The PAFP counselling service should be considered as an essential item in the national free public health service budget.
⑦ Preventive education to unmarried, young population and their parents, as well as promotion of men's responsibility in family planning should be strengthened.

This policy brief was presented in the final dissemination conference with the attendance of many honourable guests from the European Commission, Embassy of Belgium in China, national and international healthcare organisations, along with experts of INPAC's Scientific Advisory Board, Ethics Advisory Board, Policy Advisory Board, INPAC's 7 Consortia members and representatives of 90 participating hospitals from 30 provinces in China.

3.7 Work package 8 - Dissemination of research progress and results

The WP8 ran the whole project period. The package developed the dissemination strategies at national and international levels, publication guidelines, procedures and guidelines for data use. Several dissemination modes were used at different levels. In the third reporting period, seven abstracts were accepted and presented at different international scientific conferences as oral or poster presentations. Four publications based on INPAC data were accepted at peer-reviewed SCI journals, and two are in the process of review and submission.

The results and lessons of the INPAC project can be used for the planning and development of PAFP services and related policies. Furthermore, it can enhance the knowledge of local, national and international stakeholders about the use and barriers of family planning (FP) services in China to integrate PAFP into existing abortion services for the reduction of unwanted pregnancies. To ensure the optimal exploitation and dissemination of research findings, special attention was given to incorporate activities that run simultaneously with all other study activities, throughout the entire period.

During the 54 months of the INPAC project, vigorous dissemination of study findings was carried out by means of presentations at international conferences, publications of scientific papers and a book, the production of a newsletter and leaflets, and other dissemination activities at both national and international levels. These strategies targeted a distinct but overlapping audience that included policy and decision makers in the health sector (Ministry of Health, international health organisations); key stakeholders (health managers, abortion service providers and family planning workers); and the (inter)national scientific community. Further information of all the dissemination activities and results are detailed in the session 5 (Dissemination activities and application of results).

Potential Impact:

4. The potential impact of INPAC project

4.1 Contribution to national standards

China, a transitional society, is experiencing a difficult transformation process, both in the health and social situations of its population, as well as in service provision, leading to a growing need to critically evaluate the existing service structures and working methods. Currently, the delivery of FP services after induced abortions does not belong to the standard package of services provided in China. Though FP services are widely promoted, these are separated from the abortion services and are leaving young and unmarried women and rural-to-urban migrant women without access to professional FP services. The project consortium hopes to document the effectiveness of integrating PAFP, especially innovative follow-up PAFP, into existing abortion services at hospitals. The prevention of unwanted pregnancies and repeat abortion can be achieved by promoting equitable accessible services, which are women's right regarding fertility control and protection of reproductive health. Ultimately, this should result in the development of standardized national guidelines and the scaling-up of PAFP services, nationwide.

4.2 Impact on performance of health service

By working within the existing health system, the project aims to impact the performance of the health system with emphasis on preventive services. It also aims to demonstrate the effectiveness of integrating PAFP into existing abortion services in 'real-world' situations, rather than measure effect of interventions in ideal settings. This choice is deliberate and necessary to have a large and sustained impact on overall women's health interventions must be feasible and appropriate and have the potential to be implemented on a large scale.
4.3 Long-term impact
In addition to the impacts discussed above, some long-term impacts are expected through considering health system issues. They include:

- Reducing the risk of infertility in women, which is a major health problem worldwide;
- Empowering women to seek other types of reproductive healthcare through factual reproductive knowledge and building good ‘woman-provider’ relationships;
- Reducing the risk of HIV and other STI prevalence, particularly among migrant women through providing information on safe sex;
- Raising common knowledge of reproductive and sexual health at project communities;
- Building neutral, social environments for women who seek abortion;
- Generating a profile of strengthening preventive services, which will be a good example contributing to the new round of Chinese health system reforms;
- Contributing to socio-economic development in project communities;
- Creating a network linking Chinese and European partners to promote the delivery of PAFP for women in China.

4.4 Contribution of the INPAC project to MDGs
WHO has estimated that complications of unsafe abortion are responsible for 13% of all maternal deaths. Women who have had an induced abortion are likely to have a repeat abortion unless they receive appropriate FP counselling and services. The proposed interventions of preventing unintended pregnancy and repeat abortion have a major impact on saving women's lives and protecting women's health. The research findings will be interesting for other countries with a high burden of abortion: in Asia, Africa, Latin America and Eastern Europe. Strengthened PAFP services are important ingredients in maternal mortality reduction that enables progression of the Sustainable Development Goals (SDG) 3- Ensure healthy lives and promote well-being for all at all ages, and 10- Reduce inequality within and among countries.

The project could also impact SDG 1- End poverty in all its forms everywhere, by reducing the need for costly emergency services for abortion complication. Complications from abortions represent a significant cost both to the health systems (in terms of personnel time, supplies, anaesthesia, blood transfusions, antibiotics, hospital beds, operation room etc.) and to health users. Poor households will be exposed to an economic shock and may suffer long-term financial and social consequences from abortion. Provisions of PAFP reduce the need for abortion services and subsequent emergency post-abortion care.

4.5 European dimensions of the INPAC project
China has endorsed and is committed to the implementation of international agreements as the ICPD program, the World Summit for Social Development Action of the Fourth World Congress on Women (FWCW) and the SDG declarations. The Chinese government has recognized that there are weaknesses and shortcomings in its health system in order to meet the health needs resulting from its rapid social progression. It is now widely recognized that without an effective health system in place, it would be extremely difficult to work towards declared population health improvement and the SDGs. The Chinese government has committed to increasing government funding for healthcare and strengthening the capacity of the health systems. One of the priorities is to gradually introduce equal access to basic public health services with maternal health as one of the targets. International research experiences, as well as technical supports, are critically needed to transform increased investment into efficient healthcare delivery.

The relations between the EU and China have developed and centred around: 1) Political dialogue, which includes specific dialogue on human rights; 2) EU-China cooperation programmes, an instrument through which the EU provides technical assistance to China. 3) International scientific cooperation, particularly with Europe, is one of the major priorities for China. The EU initiated one of the objectives of the China Country Strategy Paper- “To provide support for China's reform programme in areas covered by sectorial dialogues, where EU experience can provide added value.” A scientific cooperation agreement signed in 2001 provides access to high-level scientific and technological expertise with the aim of creating markets for research to be carried out.

The INPAC project involved national stakeholders from China during the project to maximize opportunities for Research into Policy and Practice. Similarly, an EC report on North-South partnerships, reviewing 20 years of health system's research support through international cooperation, concluded that further efforts are needed to overcome the “know-do” gap. The project consortium responds directly to this recommendation.

European experiences on reproductive health, particularly on FP service organizations and provisions, can be of value to China. On the other hand, lessons from the INPAC project also benefited the EU, especially in the transitional health system in Eastern European countries. Through this project, European researchers and the European community became more familiar with Chinese reality. Chinese researchers were given the opportunity to collaborate and exchange experiences with European research institutions.

In short, the INPAC project was of direct relevance to the increasing international and European cooperation in women’s health, as well as to the efforts of reaching the SDG targets.

4.6 Influence of other national and international research activities
This project built on the broad Chinese and international experiences of the research partners involved in it. Each of them had extensive experience on health system's development with special attention to maternal health, in cooperation with international organizations
The vast cumulative experience provided the project with valuable inputs, allowing it to link with ongoing research initiatives in the project areas. It is also anticipated that other Chinese and international research activities would influence the activities of the project during the study period. As relevant evidence became available during the study, it was possible to alter the interventions accordingly. This approach reflects the underlying motive of the study, which was flexible by design; to streamline activities within existing services, while focusing attention on and building up new and appropriate PAFP services for women.

The INPAC project actively sought opportunities to link with other research activities by EU-China collaboration as a platform to attract further national and international research activities. Therefore, efforts were made to identify complementarities and take advantage of potential synergies in research.

4.7 Conclusion

Since the launch, INPAC collected large amounts of various data on health users (women seeking abortion), health providers and the hospitals where abortions are performed. It has disseminated its research findings through a variety of publications, including scientific papers, a book (INPAC Book), and presentations in national and international conferences. The existing database can also be used for further analysis and research.

Policy briefs, which inform evidence-based policy changes related to family planning services, are an essential output of INPAC's dissemination strategy. Through their creation, policymakers and government heads are updated on the outcomes of INPAC interventions and thus, can make informed decisions regarding policy change in China. Furthermore, through these briefings, INPAC aims to inspire a scaling-up of its interventions to the national level in China.

At the international level, INPAC has the potential to guide other countries with high abortion rates on implementing similar intervention strategies. These can be adapted for the respective country and implemented through collaborative efforts between its policymakers, government, and INPAC members.

While sustainability is a top priority, funding is still required to successfully bolster INPAC's dissemination strategy and elicit as much change as possible from its findings through translation into policy and action. For example, funding could be used to create a team of experts responsible for scaling-up interventions on the national level while continuing to inform policy change. Thus, INPAC has a continued interest in forging large-scale change, both in China and internationally, which requires additional backing by donors.

List of Websites:
5.1 The address of the project public website
English version: http://www.inpacproject.eu
Chinese version: www.pac-china.org

5.2 Contact details of INPAC consortium
The INPAC project is a four-year collaboration between four Chinese and three European partners. The consortium is composed of:
- Lead partner: International Centre for Reproductive Health of the Ghent University (UG-ICRH), Sint-Pietersnieuwstraat 25, 9000 Gent, Belgium. Contact person: Prof. Dr. Marleen Temmerman & Prof. Dr. Wei-Hong Zhang, e-mail: marleen.temmerman@ugent.be & weihong.zhang@ugent.be
- Partner 2: Chinese Society of Family Planning - Chinese Medical Association (CSFP). West street Dongsi Xidajie 42, Beijing 100710, China. Contact person: Prof. Dr. Jian Li, e-mail: lijian5710@gmail.com
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More information can be found on www.inpacproject.eu

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