



# The impact of publicly financed family planning services on pregnancies, births and costs: a critical review of the peer-reviewed literature

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## Abstract

### Introduction

Low-income women in the United States obtain access to family planning services in large part through publicly subsidised federal, state and local programmes. Public support for publicly funded family planning care is based on the belief that these programmes reduce unintended pregnancy, promote better birth outcomes and save governments money. There is, therefore, a need to assess the results from and quality of existing research in this area. This article discusses the impact of publicly financed family planning services on pregnancies, births and costs.

### Materials and methods

This article reviews 11 published evaluations of publicly financed family planning services and its impact on pregnancies, births and costs for the period 1990–2013. Relevant studies were identified through a search of PubMed and SCOPUS databases and the strength of their methodology was assessed using the US Preventive Services Task Force quality rating criteria.

### Results

All reviewed articles received a quality rating of 'fair' but varied on a number of different dimensions, including their methodology, data sources, time frame, outcomes of interest and scope, preventing direct

comparisons across studies. Results from reviewed analysis do, however, suggest that publicly funded family planning services avert a significant proportion of unintended pregnancies, improve birth outcomes and reduce governmental costs.

### Conclusion

The reviewed literature demonstrates that publicly financed family planning care promotes control over childbearing decisions and improved birth outcomes, while saving local, state and federal governments money. However, this review also identified several important research gaps and flaws in the existing evidence base, particularly in the generalisability of results and narrow set of measures used to estimate impact. We suggest several ways to expand the field of available research by leveraging opportunities afforded through state Medicaid reform legislation and Medicaid expansions under the Affordable Care Act.

### Introduction

Low-income women in the United States rely, in large part, on publicly financed family planning services to help achieve their childbearing goals and prevent unintended pregnancy. In 2010, nearly nine million U.S. women received publicly subsidised family planning. Of these nine million, close to seven million sought services at publicly funded clinics, accounting for one of every four women in the U.S. who accessed family planning care<sup>1</sup>. Public funding for these services comes from a number of federal, state and local sources. Since the 1970s, the Title X federal grant, the only federal programme devoted to the provision of comprehensive

family planning to low-income individuals and/or uninsured people, has been a key source of this care<sup>2</sup>. In recent decades, Medicaid coverage for family planning has too grown substantially, overtaking Title X to become the largest single public funding source for these services. In 2010, more than two million women received Medicaid-reimbursed contraceptive services from private physicians<sup>1</sup>. In 2010, public expenditures for family planning services totalled \$2.37 billion; Medicaid accounted for 75% of these total expenditures, state appropriations for 12% and Title X for 10%<sup>3</sup>.

Over four decades of public support for the provision of family planning care to low-income and/or uninsured women has been based, in large part, on the belief that these expenditures increase access to and utilisation of contraceptives and by doing so, reduce unintended pregnancy, promote better birth outcomes and ultimately save local, state and federal governments money. This article presents a critical review of the evidence in this area through an examination of the available literature on the impact of publicly financed family planning services on pregnancies, births and governmental costs. It outlines the prescribed approach used to identify, synthesise and evaluate the quality of the evidence and offers recommendations for future research.

### Assumptions, audience, definitions and conceptual framework

The purpose of and methodology used in this critical literature review rests on three working assumptions. First, the primary audience consists

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of health services and policy researchers as well as federal and state policy-makers. Second, the term 'publicly financed' refers collectively to Medicaid expenditures, Title X funds and state-level subsidies. Finally, the availability of publicly funded family planning services increases access to family planning services, which in turn allows women to better control pregnancy spacing and/or avert unintended pregnancy, thus lowering overall birth rates while improving outcomes for women and newborns and consequently reducing health care and other related costs (Figure 1).

This review also draws on the conceptual work of Aday and Begley, who introduced concepts and methods in health services research and policy analysis for evaluating the effectiveness, efficiency and equity of the healthcare system<sup>4</sup>. Their later adaptation of this framework for the assessment of behavioural health-oriented health services posits that prevention and outcomes-oriented research influences provision and payment decisions at local, state and national levels, affording researchers an opportunity to impact implementation and financing determinations

but that most assessments have not been able to precisely conceptualise and measure effectiveness, efficiency, and equity as it relates to behavioural health-system performance<sup>5</sup>. Based on the tenants put forth by Aday and Begley, we aimed to synthesise and assess the quality of available evidence on the effectiveness (i.e. health-outcomes) and efficiency (i.e. costs) of publicly financed family planning care.

### Materials and methods

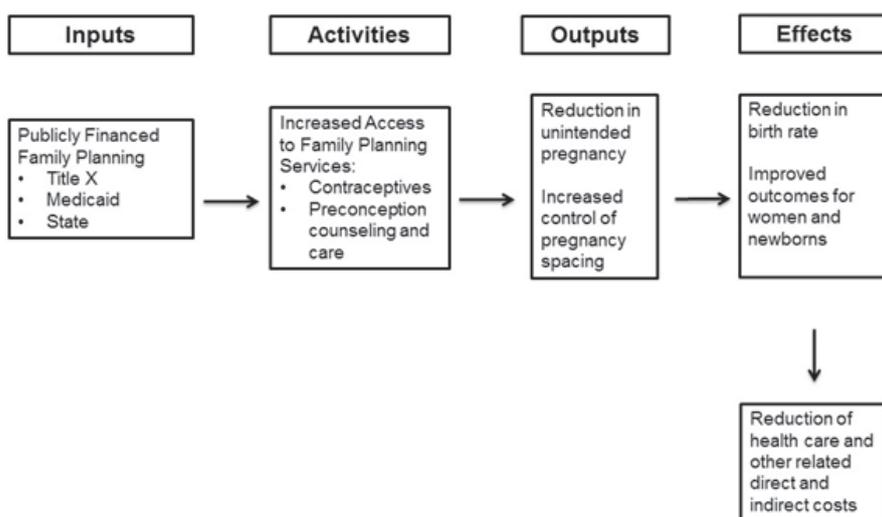
The peer-reviewed literature was searched using two electronic databases: PubMed and SCOPUS ( $n = 2$ ). The search was inclusive of all titles from 1 January 1990 through 25 July 2013 to ensure that review findings reflected the most up to date developments in the field while also capturing a large enough time period to identify longitudinal trends or changes. Studies in languages other than English and in the grey literature were excluded. Grey literature was excluded to help ensure that reviewed analyses met a minimum standard of rigour (i.e. had been vetted through a peer-reviewed publication process). A combination of search terms were pulled from PubMed and SCOPUS

database indexes and used to mine their literature catalogues. The following search terms were utilised: (1) Family planning, family planning services, contraceptives and contraception; (2) Medicaid and Title X; (3) cost, cost effectiveness, cost benefit and cost analysis and (4) birth outcomes, unintended pregnancy, pregnancy outcomes and prenatal care.

After removing duplicate sources, the search yielded 529 unique publications, each reviewed at the title and/or abstract level. This preliminary evaluation applied standard criteria to identify studies that: (1) were experimental or observational; (2) evaluated the impact of publicly financed family planning on any one or combination of the following: birth outcomes, pregnancy outcomes and costs; (3) focused on the quantitative effects of publicly financed family planning services; (4) were conducted at the state or national level and (5) were published in the formal peer-reviewed literature.

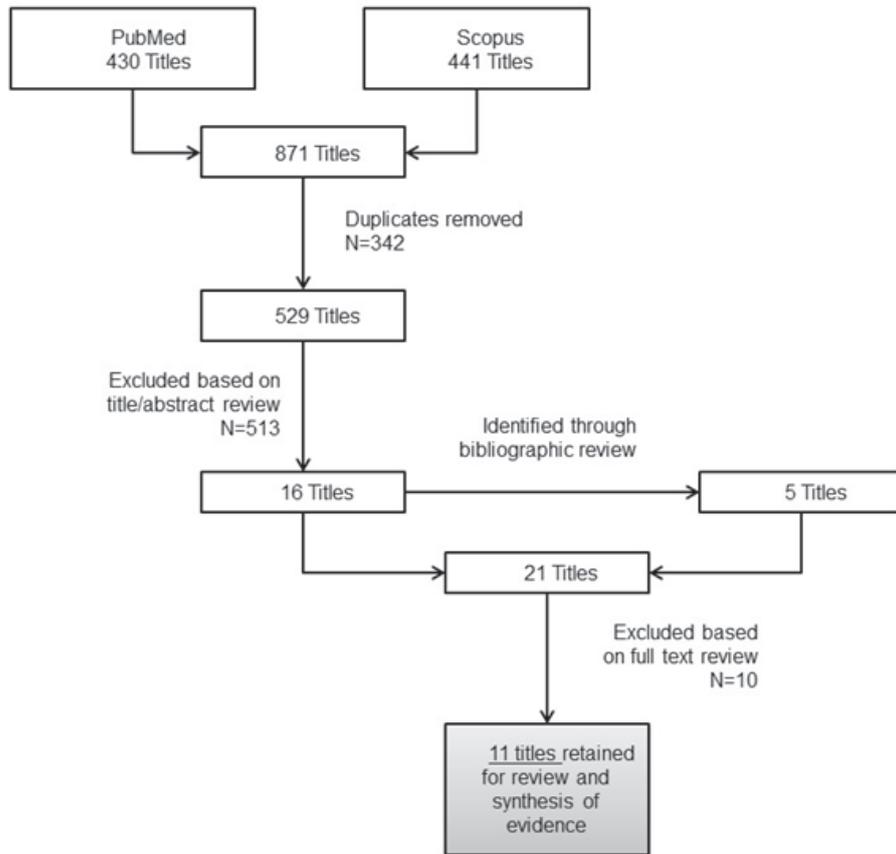
This preliminary review narrowed the field of relevant studies to sixteen titles. A manual search of the bibliographies of these sixteen titles to identify other relevant references also published in peer-reviewed journals supplemented the database search. This process identified an additional five titles resulting in a total of twenty-one publications for full review. Complete versions of these articles were reviewed using the same standard criteria listed above, resulting in the exclusion of ten additional titles. Collectively, this approach yielded eleven unique research articles included in the synthesis of available evidence for purposes of this systematic review (Figure 2).

We applied the US Preventive Services Task Force quality rating criteria<sup>6</sup> to the eleven studies and assigned a score of good, fair or poor based on their level of compliance with task force criteria. One lead



**Figure 1:** Logic model describing the inputs, activities, outputs and effects of publicly financed family planning services.

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**Figure 2:** Flow diagram outlining the search methodology used to identify relevant articles and the step by step process of article review.

reviewer conducted literature searches and assessments, which were verified by a second individual.

## Results

The studies included in this review vary on a number of different dimensions, including their methodology, data sources, state or national scope, focus on Medicaid, Title X, state appropriations or some combination of the three, time frame and outcomes of interest. Of the eleven studies reviewed, five were conducted as state-specific analyses<sup>7-11</sup>, four as cross-state comparisons<sup>12-15</sup> and two examined aggregated national-level data<sup>16,17</sup>. State-specific analyses together report on over a decade of findings, examining unintended pregnancies averted and costs associated with California's Family PACT (Plan-

ning, Access, Care and Treatment) programme, a state initiative that was first founded in 1997 and has since grown to be the nation's largest Medicaid family planning expansion<sup>10</sup>. National-level analyses, separated by almost two decades, also provide estimates of unintended pregnancies averted and public-sector costs saved. Cross-state comparison studies introduce birth-related measures as an additional proxy of programme impact and a subset of other birth-outcomes against state-level family planning expenditures and/or Medicaid expansion policies in order to contrast state investments in publicly subsidised family planning and compare their impact on birth-related measures.

These studies differed most in their definition of 'publicly funded' services and methodology for calcu-

lating public expenditures. Some articles account for all Title X, Medicaid and state appropriations while others exclude a portion of these costs. For example, one national study limited its assessment to family planning services rendered at publicly funded clinics, effectively excluding any Medicaid-reimbursed family planning visits occurring in private practice<sup>17</sup>.

The reviewed studies relied on a wide set of data sources, including national and state databases (i.e. National Vital Statistics, National Survey of Family Growth, Medicaid Statistical Information System, Behavioural Risk Factor Surveillance System, U.S. Census and California's Women's Health Survey), paid claims data, medical record reviews and publicly available state and national expenditure reports.

## Study design and quality

All eleven reviewed studies were observational. Of these eleven studies, six relied on within-subject analysis<sup>7-10,16,17</sup> while five integrated the use of separate exposure and comparison groups<sup>11-15</sup>, capitalising on the staggered implementation of publicly subsidised family planning programmes among states and the natural division of treatment and control groups formed through income-eligibility cut-offs. Of the five multi-group analyses, two employed a time series approach<sup>14,15</sup> and three relied on a cross-sectional, difference-in-difference design<sup>11-13</sup>. Based on study sample selection, response rate, measurement accuracy and validity and attention to confounding variables, all eleven reviewed studies received a quality rating of 'fair' on the US Preventive Services Task Force quality rating scale (Table 1).

## The impact of publicly financed family planning on birth and pregnancy: findings

All reviewed studies assessed the impact of publicly financed family



Table 1 A detailed crosswalk of reviewed studies comparing study design and quality, study setting, study population, data source(s), assessed outcomes and reported results						
Author, Year	Study design/quality	Study setting	Study population	Data source(s)	Assessed outcomes	Reported results
Adams (2013)	Two-group; Quasi-experimental; observational; fair	California and comparison states	Treatment: Californian women aged 18–44 made newly eligible for family planning services by the Medicaid waiver from 1997 to 2006  Comparison: Slightly higher-income women in California not eligible under the waiver; women from states that did not implement a Medicaid family planning waiver (sample size not reported)	CWHS; BRFS	Pregnancy rate	California Medicaid family planning waiver led to 3% decline in current pregnancies.
Amaral (2007)	Within-subject; observational; fair	California	Women who received contraceptives through family PACT in 2002 (n = 926,218)	Medical record review; published programme reports and budgetary data	Unintended pregnancies averted; governmental cost-savings	California's Family PACT programme averted an estimated 205,000 pregnancies in 2002; \$2.76 saved within 2 years and \$5.33 within 5 years for every dollar of public funds spent on Family PACT.
Forrest (1990)	Within-subject; observational; fair	National	U.S. women aged 15–44 using reversible contraceptives in 1982 who had recently made a family planning visit to a publicly funded provider (sample size not reported)	NSFG; Periodic surveys by Alan Guttmacher Institute of state officials on public expenditures; Periodic reviews of federal family planning grants under Title X	Unintended pregnancies averted; governmental cost-savings	Publicly funded family planning averted between 1.2 million and 2.1 million unintended pregnancies in 1987; \$4.40 saved for every dollar of public funds spent on family planning.
Foster (2004)	Within-subject; observational; fair	California	Women who received contraceptives through the Family PACT programme from July 1997 to June 1998 (n = 491,569)	Paid claims; medical record review	Unintended pregnancies averted	One year of California's Family PACT programme averted an estimated 108,000 unintended pregnancies.
Foster (2006)	Within-subject; observational; fair	California	Women who were new to Family PACT in 2000–2001 (n = 868)	Paid claims; medical record review	Unintended pregnancies averted	California's Family PACT programme averted an estimated 205,000 unintended pregnancies in 2002.
Foster (2011)	Within-subject; observational; fair	California	Women who were new to Family PACT in 2005 (n = 583)	Paid claims; medical record review	Unintended pregnancies averted	California's Family PACT programme averted an estimated 286,700 unintended pregnancies in 2007.

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Table 1 Continued						
Author, Year	Study design/quality	Study setting	Study population	Data source(s)	Assessed outcomes	Reported results
Frost (2008)	Within-subject; observational; fair	National	Women aged 15-44 who had obtained family planning care from a publicly supported provider in the prior 12 months and who were using reversible methods at the time of interview or who received a tubal ligation in the past year (n = 772)	NSFG; Title X revenue data; data on Medicaid prenatal, delivery, postpartum, and infant care costs for 22 states from family planning waiver applications and evaluations; previously published unintended pregnancy and family planning utilisation estimates	Unintended pregnancies averted; Governmental cost-savings	1.4 million unintended pregnancies were collectively averted by all U.S. publicly funded family planning clinics in 2004; \$4.02 saved for every dollar of public funds spent on family planning.
Kearney (2009)	Two group; quasi-experimental; Observational; fair	All U.S. States	Treatment: States that expanded Medicaid eligibility for family planning between 1993 and 2007 (n = 14) Comparison: States that did not expand	Vital statistics; census data	Birth-rate	State-level Medicaid policy changes expanding eligibility for family planning services to higher income women reduced overall birth to non-teens by 2% and to teens by over 4%.
Lindrooth (2007)	Two group; quasi-experimental; observational; fair	All U.S. states	Treatment: States that implemented income- and postpartum-based Medicaid eligibility expansions for family planning between 1991 and 2002 <sup>13</sup> Comparison: States that did not expand	Vital statistics; census data	Birth-rate	Medicaid eligibility expansions lowered average annual birth rates in all states. Birth rates were reduced on average by 1.95 points in income-based expansions and by 0.87 points in postpartum-based expansions.
Meier (1994)	Multiple group; quasi-experimental; observational; fair	All U.S. States	All 50 states between 1982 and 1988	Vital statistics; publicly available data on federal and state family planning expenditures	Low birth weight; Infant mortality rate; neonatal mortality rate; births with late or no prenatal care	States that had higher expenditures for family planning had significantly fewer low birth weight babies, births with late or no prenatal care, infant deaths and neonatal deaths.
Yang (2010)	Two group; quasi-experimental; observational; fair	All U.S. States	Treatment: States with a Medicaid Family Planning Waiver programme between 2000 and 2006 Comparison: States without Family Planning Waiver programme	Vital statistics; census data	Teen birth-rate	Offering the Medicaid Family Planning Waiver had a significant influence on teen birth rates. On average, the waiver helped reduce teen birth rates by 2.1 per 1,000 female teens per state.

NSFG, National Survey of Family Growth; MSIS, Medicaid Statistical Information System; BRFS, Behavioural Risk Factor Surveillance System; CWHHS, California Women's Health Survey; Family PACT, Family Planning, Access, Care and Treatment.

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planning services on birth or pregnancy-related outcomes. Four measured reductions in state, national, teen and non-teen birth-rates as a proxy for programme impact, citing significant birth-rate reductions in response to the implementation of Medicaid family planning waivers<sup>11-13,15</sup>. Another study reported on improvements in birth outcomes in response to publicly financed family planning care, citing a reduced number of low-birth weight births, births with late or no prenatal care, infant deaths and neonatal dates<sup>14</sup>. The most commonly reported measure across reviewed studies was unintended pregnancies averted<sup>7-10,16,17</sup>. When taken together, results from these state and national-level analyses suggest that publicly funded family planning services avert a significant proportion of unintended pregnancies.

### **The impact of publicly financed family planning on governmental costs: findings**

Of the eleven studies reviewed, three calculated the public-sector cost savings associated with publicly financed family planning care<sup>7,16,17</sup>. Two of these studies provided national-level estimates<sup>16,17</sup>, while the third calculated state-level cost-savings from California's Family PACT programme<sup>7</sup>. Each study approached cost calculations differently. For example, one study accounted for two years of averted medical care, welfare and supplementary nutritional programme costs<sup>16</sup>, while another incorporated a smaller subset of averted Medicaid maternity and infant medical care expenditures<sup>17</sup>. These methodological differences prevent direct comparisons across studies, but regardless of their approach, all three articles suggest that providing low income and/or uninsured women access to publicly funded family planning care results in substantial governmental savings.

### **Discussion**

Available literature investigating the impact of publicly financed family planning services on birth and pregnancy outcomes and governmental costs consistently report positive effects, suggesting that publicly financed family planning care is a promising mechanism to prevent unintended pregnancies, while saving local, state and federal governments money. However, the results of these studies are not necessarily generalisable across all state contexts. State-level studies all focus on California's publicly financed family planning programme, thus it is difficult to ascertain how reported outcomes may translate into other settings. Although a few cross state comparisons provide some additional insight in this area, most comparative studies assessed state birth-rate as a proxy for programme effects, a downstream measure that can be explained by many other factors (e.g. infant mortality, cultural norms, education and employment) that are not controlled for in the existing literature. Additionally, assessments on the impact of publicly financed family planning services on birth rate and other downstream measures would be strengthened by longer study periods that account for the time it takes to avert or delay pregnancies and for women to become pregnant and deliver. Future research should sample a larger and more diverse set of state family planning programmes to determine whether programme effects remain stable across varying contextual conditions, better account for confounding factors and consider utilising longitudinal research methods to capture the long-term impact of publicly financed family planning coverage or eligibility changes.

Most reviewed articles reported on averted unintended pregnancies as a proximate measure of programme success. These analyses too suffer from some important limitations.

Unintended pregnancies averted are not directly measured, but rather estimated on the basis of certain underlying assumptions about contraceptive usage patterns in the absence of publicly financed family planning care and the unintendedness of pregnancy. Pregnancy intentions and their impact on contraceptive decision making are complex concepts that have been subject to theoretical and methodological critiques and increasingly viewed as encompassing cognitive, cultural and contextual dimensions that are missing from current conventional measures<sup>18-20</sup>. Thus, measures of unintended pregnancy, as defined in the reviewed literature, must be subject to a certain level of scrutiny and the results of these analyses should be taken with some caution. Future research should aim to further define pregnancy intentions and refine measures of unintended pregnancy in an effort to better position researchers to assess the true impact of publicly financed family planning programmes on women.

In addition to measures of unintended pregnancy, impact assessments should also examine a larger set of birth and pregnancy-related events to capture the effect of publicly financed family planning care on negative birth outcomes, such as health status of the pregnant and postpartum women (e.g. control of chronic conditions such as hypertension and diabetes), pregnancy-related complications, low birth weight, infant and neonatal mortality and utilisation of prenatal and postnatal services. These types of measures would contribute to a more sophisticated and holistic understanding of how programmes impact the lives of women and their children. A review of the available literature identified only one article examining the association between publicly financed family planning care and this larger set of outcomes<sup>14</sup>. Future research should utilise stronger methodology



to investigate the link between publicly subsidised family planning services, prenatal care patterns and negative birth outcomes.

A review of the literature has identified several opportunities to expand the field of available research on the impact of publicly financed family planning services by strengthening study methodology and improving on the measures currently used to assess programme impact. Researchers may need to look beyond currently available national and state level datasets to acquire more appropriate and valid measures of programme impact and address current limitations of the published literature. Investigators should also capitalise on research opportunities afforded by Medicaid reform legislation, which has given states a new and more expeditious option for expanding eligibility to Medicaid reimbursed family planning<sup>21</sup>. As of November 2013, 31 states have obtained federal approval to extend Medicaid eligibility for family planning services to individuals who would not otherwise be eligible<sup>22</sup>. In addition, under the 2010 Affordable Care Act, roughly half of the states will be expanding Medicaid coverage to women under 133/138% FPL, effective January 2014. This coverage includes a package of essential health benefits that encompasses preventive care, maternity care, well-woman care and contraception (among other services). In short, these expansions will provide an enhanced level of family planning services on a limited basis to a limited number of women. Expansions and state-specific decisions regarding eligibility and scope of service provide researchers an opportunity to examine the consequences of these determinations in a variety of state settings and to employ rigorous research designs that capitalise on the natural division of 'treatment' (i.e. expanding) and 'control' (i.e. not expanding) states and varying levels of 'exposure' (i.e. differences in eligibility) among states with expansions.

### Conclusion

This systematic literature review was undertaken to explore what is currently known about the impact of publicly financed family planning services on pregnancies, births and governmental costs in an effort to inform implementation and financing decisions and highlight areas where further research is still needed to guide effective policy-making. Current research suggests that publicly financed family planning promotes control over childbearing decisions and improved birth outcomes. However, additional research is needed to more holistically define and evaluate the benefits of family planning care, to illustrate the benefits of publicly financed family planning services across a wider range of contexts and to strengthen existing evidence on the value of family planning care through increasingly rigorous research design and methodology.

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