



SOCIETAL RETURN ON INVESTMENT IN NURSE-FAMILY PARTNERSHIP SERVICES IN CALIFORNIA

Nurse-Family Partnership (NFP) is a program of intensive prenatal and postnatal home visitation by nurses. It targets low-income mothers and their first-borns. Through 2011, NFP served 145,704 families.

NFP has three goals: (1) to improve pregnancy outcomes by helping women improve their prenatal health, (2) to improve child health and development by helping parents provide more sensitive and competent care, and (3) to improve parental life-course by helping parents plan future pregnancies, complete their educations, and find work. By design, NFP helps parents to understand how their behaviors influence their own health and their child's health and development. It enables them to change their lives in ways that protect themselves and their children more effectively.

The first fact sheet in this series summarized life status and financial outcomes of NFP in California. This fact sheet describes dollar benefits associated with those outcomes and estimates return on investment in NFP. A third fact sheet estimates government's savings.

In California, costs per NFP client average \$12,311, with cost per visit of \$542 and cost per day of participation (active enrollment) of \$22.81. These costs are well below NFP costs in randomized trials.

Some families participate in NFP for more than 2.5 years. Others drop out quickly. Of the costs, 26% would be incurred prenatally, 45% in the first year after birth, and the remaining 29% in the second year after birth. Because money earns interest, we applied a discount rate of 3% to estimate the present value of costs, \$12,075. That is the amount needed today to pay costs over time. Costs reflect average client participation of 539.8 days after enrollment and 22.7 visits. We based these on enrollment and service usage patterns of 2008 enrollees and 2009-2010 participants in NFP in California. We used 2010 cost data averaged across six states, then tailored to wages of nurses in California.

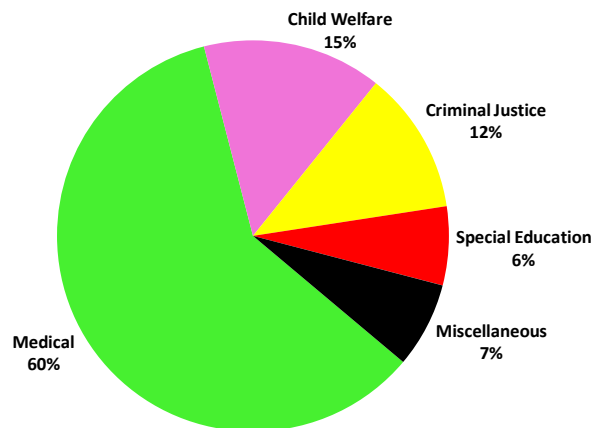
Benefits to society per NFP family served in California average \$51,204 (present value at a 3% discount rate). Dividing benefits by cost per family served yields a benefit-cost ratio of 4.2 to 1. Table 1 summarizes estimated benefits and costs of NFP per family served and associated economic return. Savings net of program costs are \$39,129 per family.

We split resource cost savings (out-of-pocket payments by government, insurers, and families including savings on medical care, child welfare, special education, and criminal justice) from less tangible savings (gains in wage work, household work, and quality of life of NFP families and of people who avoid becoming crime victims). Net of program costs, resource cost savings are -\$1,128 (\$10,947 resource cost savings minus \$12,075 program costs). That means NFP saves society money out of pocket. Less tangible savings total \$40,257. Figure 1 details the resource cost savings.

Table 1. Present Value of Benefits and Costs per Family Served by Nurse-Family Partnership, California, 2010

Benefits of NFP	Per Case
Reduced Smoking While Pregnant	\$3
Reduced Preeclampsia	\$670
Fewer Preterm First Births	\$1,664
Fewer Subsequent Births	\$435
Fewer Subsequent Preterm Births	\$1,309
Fewer Infant Deaths	\$24,324
Fewer Child Maltreatments	
Substantiated Cases	\$3,756
Indicated & Unreported Cases	\$6,598
Fewer Nonfatal Child Injuries	\$889
Fewer Remedial School Services	\$90
Fewer Youth Crimes	
Arrests	\$1,440
Crimes	\$9,892
Reduced Youth Substance Abuse	\$29
More Immunizations	
Savings Net of Immunization Cost	\$105
Total Benefits	\$51,204
Resource Cost Savings	\$10,947
Intangible Savings (work, quality of life)	\$40,257
Cost of NFP	\$12,075
Net Cost Saving	\$39,129
Resource Cost Savings Net of Program Costs	-\$1,128
Benefit-Cost Ratio	4.2

**Figure 1. Resource Cost Savings per Family Served by NFO in California
Total \$10,947 (Present Value at a 3% Discount Rate)**



Benefits are spread over 18 years and costs over 3 years. Because of reduced neonatal mortality, NFP breaks even within its first year of service to a family. It recoups its costs in resource cost savings alone before the child reaches age 19.

These estimates, although robust, are based on conservative assumptions. Return on investment is not overly sensitive to assumptions or to uncertainties about impacts. It is at least 4.0:1 under a broad range of lower-bound scenarios. Prior estimates of return on investment in NFP used costs in trials. They omitted outcomes documented in recent studies. Most did not adjust for reduced effectiveness in replication. We estimate the benefit-cost ratio for randomized trials is 5.1, at the low end of the range from 5 to 7 from earlier studies.

METHODS

Program costs are based on national average cost per NFP visit adjusted to California prices using ACCRA all-items price index. In states with operating NFP programs, average visits per family are state-specific. Elsewhere they are the national average in well-established NFP programs.

Benefits (cost savings) equal units of outcome (documented in the Outcomes Fact Sheet) times costs per unit of outcome.

Miller (2012) details how we valued cost-saving benefits nationally. Table 2 shows unit costs by outcome in California. The rightmost column in Table 2 shows primary sources for these costs.

With minor exceptions, benefits per unit of outcome came from published studies. Miller (2012) made or adjusted existing estimates for some minor crimes (e.g., vandalism) and for child abuse and neglect. We adjusted national estimates of benefits per outcome to California prices using ACCRA all items and medical price adjusters and the ratio of state to national per capita income.

The benefit-cost analysis did not value increased breastfeeding initiation as breastfeeding did not persist.

References. Please see the references fact sheet.

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Table 2. Unit Costs of Harms Prevented in California by Cost Category and Primary Sources of Cost Estimates

	Medical/ Mental Health	Special Education	Adjudication & Sanctioning	Property Damage/ Funeral	Work	Quality of Life	Total	Primary Sources
Reduced Smoking While Pregnant	\$250						\$250	Adams & Melvin 1998
Reduced Preeclampsia	\$11,906						\$11,906	Preeclampsia Foundation 2007
Fewer Premature Births	\$39,457	\$4,968			\$14,314		\$58,739	Machlin & Rohde 2007; Institute of Medicine 2006
Fewer Subsequent Births	\$7,109						\$7,109	Same sources as premature births
Reduced Infant/Child Mortality				\$1,500	\$1,199,042	\$6,594,567	\$7,795,109	Miller et al. 2012
Fewer Child Maltreatments								Miller 2012; Fang
Confirmed Cases *	\$13,592	\$2,849	\$53,173	\$8	\$1,320	\$39,253	\$110,195	et al. 2012; &
Other Cases	\$13,592	\$2,849	\$135	\$8	\$1,320	\$39,253	\$57,157	Miller et al. 1996
Fewer Nonfatal Child Injuries	\$1,995				\$3,613	\$1,545	\$7,153	Miller et al. 2012
Fewer Remedial School Services		\$736					\$736	Snell 2009
Fewer Youth Crimes								McCollister et al.
Arrests			\$10,970		\$2,942	\$0	\$13,912	2010; Miller 2012;
Crimes	\$324		\$236	\$592	\$484	\$4,878	\$6,514	& Miller et al. 1996
Less Youth Substance Abuse	\$70				\$49	\$119	\$238	Miller et al. 2006
Increased Immunizations								Zhou et al. 2005
Net Cost Savings	\$867						\$867	

* Confirmed cases include substantiated and other indicated cases. All child welfare costs were allocated to the adjudication and sanctioning category for confirmed cases. That category includes in police, EMS, and victim services costs and in child protective services and foster care costs.