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# Preventive Health Care in Six Countries: Models for Reform?

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*International systems are frequently offered as models for health care reform. This study, focusing on preventive services for children and pregnant women in six industrialized countries, finds that a broad range of preventive services can be provided through health care systems with divergent financing and cost containment, utilizing multiple entry points into the health care system, and employing targeted programs for high-risk patients. Despite variability in form and financing, health outcomes are not compromised, suggesting that health care reformers in this country need not be restricted to any single model to strengthen preventive health care for children and pregnant women.*

## INTRODUCTION

International models have attracted increasing attention from health care reformers in this country. Numerous comparisons have been made with respect to overall health care systems (U.S. General Accounting Office, 1991a; Iglehart, 1991a, 1991b, 1988a, 1988b), financing and cost-containment mechanisms (U.S. General Accounting Office, 1991b), and levels of health care spending (Schieber, Poullier, and Greenwald, 1991). However, little has been written about the comparative differences or similarities of specific services within these systems, such as preventive health services directed at children or pregnant women (Williams and Miller, 1991; Starfield, 1991; U.S. General Accounting Office, 1993c).

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In this article, I examine the health care systems of six industrialized countries (Canada, Sweden, France, Germany, Japan, and the United Kingdom), compare their basic structures and financing arrangements, and describe how these systems address certain preventive health care needs of children and pregnant women as part of a focus on primary care. Despite wide variations in financing mechanisms, levels of health care spending, and cost-containment strategies among these six systems, each provides comprehensive services to all children and pregnant women. Additionally, access and outcome measures such as insurance coverage, prenatal care, high-risk pregnancy outreach, home visiting, immunization, universal periodic screening for children, infant mortality, and low birth weight are better than those of the United States. The variations in program structure and financing suggest that effective health care programs for this population need not be restricted to any single organizational structure; this should offer flexibility to health care reformers in this country seeking models for expanding preventive services.

## METHODS

Selected health status and health care system characteristics of six industrialized nations described in the 1991 Organization for Economic Cooperation and Development (OECD) Health Data file (Schieber, Poullier, and Greenwald, 1993) were analyzed and supplemented with information from several sources that describe services for children and pregnant women. The OECD data

characteristics analyzed included per capita gross domestic product (GDP) and percent of GDP spent on health care, public spending as a percent of health care spending, and number of physicians per capita. Other characteristics derived from supplementary sources include percent of physicians in primary care and, for children and pregnant women, measures of health status (infant mortality rates, percent of low-birth-weight infants, maternal mortality rates, and percent of births delivered by cesarean section), preventive services (rates of pediatric immunization, presence of universal periodic preventive screening, home visitation services, high-risk pregnancy outreach, duration of maternity leave, and level of maternity financial support), and access to care (percent of women of childbearing age and children without health insurance).

However, methodological problems exist with most comparative international studies. Health outcomes, for example, are determined by a variety of sociocultural factors that lack sufficient descriptive data. In addition, taxonomy often complicates international comparisons. Recent analysis of international infant mortality rates finds less disparity between the United States and other industrialized countries when adjusting for definitional differences applied to infant mortality (Liu et al., 1992). Despite these limitations, relative, rather than absolute, differences are useful in understanding international health care systems and their services.

## **HEALTH CARE SYSTEMS**

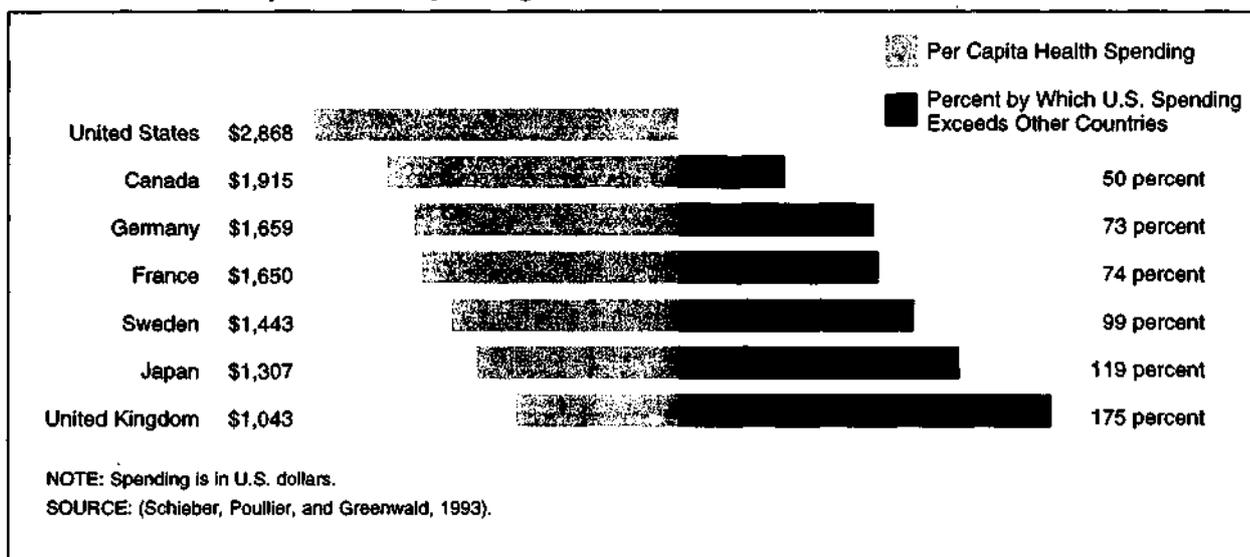
The six countries described reflect a wide diversity in organizational structure for the delivery of health care, in cost containment and financing mechanisms. The organizational structure and decision-making process are represented by

single-payer centralized systems (Canada, United Kingdom) and decentralized systems (Sweden). Other countries rely on quasi-public, employer-based sickness funds with variable coverage through public insurance (Germany, Japan, France). Private health insurance plays only a minor, supplementary role in all the foreign countries. By contrast, in the United States, the health care system is very decentralized and based predominantly on a system of private health insurance. Public programs generally serve the elderly and certain categorical groups of poor women and children. None of these countries, except the United States, contains any significant percentage of uninsured children or women of childbearing age.

In 1991, per capita spending and percent of GDP spent on health care were all substantially less than in the United States (Figure 1). The country with the next-highest spending per capita on health care was Canada. The United States spent roughly 50 percent more per capita on health care than Canada, and some 175 percent more than the United Kingdom. The percent of GDP spent on health care reflects a similar pattern (Table 1). The United States spent 13.2 percent of its GDP on health in 1991, compared with 6.6-10.0 percent for the six other countries. Although only 42 percent of health care spending in the United States is publicly funded, well over 70 percent is publicly funded in the six countries.

Partially because of the substantial public funding of health care, all six countries implement significant national cost-control measures (Chaulk and Bialek, 1993), including systemwide global budgets (Canada, United Kingdom) (U.S. General Accounting Office, 1991a), expenditure targets or global budgets for hospitals and/or office-based physicians (France, Sweden, Germany) (Rodwin et al., 1990; U.S. General

**Figure 1**  
**Per Capita Health Spending for Selected Industrialized Countries: 1991**



Accounting Office, 1991b, 1993b), provider fee schedules (Germany, Japan, Sweden, France) (Ikegami, 1990; Brenner and Rublee, 1992) or capitated fees (United Kingdom) (Ham, 1988), prohibitions on balance billing (Japan, Sweden), and limitations on medical malpractice (Canada, Japan) (Coyte, Dewees, and Trebilock, 1991; Employee Benefits Research Institute, 1990a). By contrast, cost containment in the United States is less comprehensive and generally limited to hospital and provider fees under certain public programs such as Medicare and Medicaid, patient cost sharing, and varying managed-care arrangements.

In terms of physician supply, four of the six countries have 2.2-3.1 physicians per capita, and the other two (Japan, United Kingdom) have roughly 1.5 physicians per capita. This compares with 2.3 per capita in the United States. However, the specialty distribution of physicians is strikingly different between the United States and the other countries. In the United States, only about 33 percent of all physicians declare themselves to be primary care physicians (Politzer et al., 1991). This contrasts with

the other countries, which have predominantly primary care physicians (53-63 percent) (Chaulk and Bialek, 1993; Rodwin et al., 1990; Fielding and Pierre-Jean, 1993; McAuley, 1992).

### **PRENATAL CARE AND MATERNAL DISABILITY**

In all six countries, prenatal care is comprehensive, accessible, and either free or accompanied by financial assistance. Pregnant women are not excluded from prenatal care based on insurance status or income. Public prenatal clinics often coordinate maternity services and prenatal care for women (Goodwin, 1990).

For example, in Japan, prenatal care is not a routine health insurance benefit. Instead, comprehensive maternity services are provided through public programs; however, complications occurring during pregnancy are covered by health insurance. Japan's focus on prenatal care and children's health began following World War II as part of its national reconstruction effort. By the late 1950s, national guidelines led to

Table 1

**Characteristics of Health Care Systems of Seven Industrialized Countries, by Type of Characteristic and Country**

Country	Percent of GDP	Percent Publicly Funded	Number of Physicians per 1,000 Population	Percent of Physicians in Primary Care	Percent of Population Uninsured	System Structure and Characteristics		
						Organization	Funding	Cost-Containment Methods
United States	13.2	42	2.3	34	17	Decentralized	Private more than public	Fees set for public only
Canada	10.0	75	2.2	<sup>1</sup> 53	<1	Decentralized	Single-payer public	Global budgets and fees
Germany	8.5	72	3.1	54	<1	Centralized	Private sickness funds	Fees set
France	9.1	75	2.7	57	<1	Centralized	Private sickness funds	Fees set
Sweden	8.6	90	2.9	NA	<1	Decentralized	Single-payer public	Global budgets
Japan	6.8	73	1.6	NA	<1	Centralized	Mixed public and private	Fees set
United Kingdom	6.6	87	1.4	63	<1	Centralized	Single-payer public	Global budgets

<sup>1</sup>Canadian figure reflects only family physicians and pediatricians.

NOTES: GDP is gross domestic product. NA is not available.

SOURCES: (Schieber, Poullier, and Greenwald, 1993); (Employee Benefits Research Institute, 1993); (Chaulk and Blalek, 1993).

**Table 2**  
**Maternal Access to Care and Benefits, and Health Status Measures for Seven Industrialized Countries, by Country**

Country	Percent of Women 14-44 Years of Age Without Insurance	High-Risk Pregnancy Outreach Program	National Home Visiting Program	Maternal Mortality Rate	Mandatory Maternity Leave in Weeks	Mandatory Maternity Financial Support
United States	16.2	No	No	8	12	None
Canada	<1	Yes	Limited	5	25	Equals short-term disability
Germany	<1	Yes	Limited	5	14	Separate maternity benefit plus grant
France	<1	Yes	Yes	9	16	Separate maternity benefit
Sweden	<1	Yes	Yes	5	22.5	Equals short-term disability
Japan	<1	Yes	Yes	11	14	Equals short-term disability plus grant
United Kingdom	<1	Yes	Yes	8	18	Separate maternity benefit

SOURCES: (AbouZahr and Royston, 1991); (Select Committee on Children, Youth, and Families, 1990); (Employee Benefits Research Institute, 1990b); (Family and Medical Leave Law, 1993).

the establishment of maternal and child health clinics throughout the country. By 1965, when these guidelines were enacted as the Maternal and Child Health Law, there were more than 400 such clinics nationwide. During this period of systemic focus on maternal services, Japan experienced a progressive lowering of its infant mortality rate per 1,000 live births from 60.1 in 1950 to 30.1 in 1960, 13.1 in 1970, 7.5 in 1980, and finally 4.6 in 1990 (Mother's and Children's Health Organization, 1992).

In the six countries, non-physicians provide varying amounts of prenatal care, although they do so to a greater extent than do non-physicians in the United States. For example, in some countries prenatal care is provided predominantly by midwives (Sweden, United Kingdom) with obstetricians and family physicians providing specialty care (Kohler and Jakobsson, 1987; Blondel, Pusch, and Schmidt, 1986). In France, prenatal care is shared more equally by midwives and physicians (mostly obstetricians). However, in Japan, although physicians share the provision of prenatal care with midwives (of which there were 22,918 in 1990) (Mother's and Children's Health Organization, 1992),

labor and delivery remain the province primarily of physicians.

Many of the six countries use outreach programs for high-risk pregnant women and for postpartum care. Home visiting nurses usually provide this service (Sweden, France, Germany) (Blondel, Pusch, and Schmidt, 1986; Ierodionou, 1986), although community midwives and nurses provide postpartum evaluation to women following delivery (United Kingdom, Japan) (Williams and Miller, 1991; Chaulk and Bialek, 1993). These programs may contribute to the lower infant mortality rates (4.59-8.42 per 1,000 live births) and fewer low-birth-weight infants (4-7 percent) in these countries than in the United States (9.8 and 7 percent, respectively) (National Commission to Prevent Infant Mortality, 1992).

In addition to lower infant mortality rates, four of the six countries have maternal mortality rates below those of the United States (AbouZahr and Royston, 1991) (Table 2). Cesarean-section deliveries of infants, generally indicative of pregnancy complications, occur far less frequently in these countries than in the United States (Notzon, 1990).

In all six countries, pregnancy benefits (referred to as maternal disability benefits)

are comprehensive, financially generous, and extend for relatively long periods of time (Employee Benefits Research Institute, 1990b). To encourage early prenatal care, pregnant women are offered financial incentives, such as stipends and maternity bonuses or grants, to seek early prenatal care and help defray medical expenses associated with pregnancy (Germany, Japan) (Ierodiconou, 1986). For high-risk women and women with prenatal complications, visiting nurses routinely perform prenatal evaluations and screening and ensure that women obtain full prenatal services (France, Germany, United Kingdom, Sweden) (Williams and Miller, 1991; Blondel, Pusch, and Schmidt, 1986; Ierodiconou, 1986; Miller, 1988). Visiting nurses also provide periodic postpartum visits (United Kingdom) (Williams and Miller, 1991).

Other incentives, such as maternal and child health handbooks and prenatal care certificates, entitle pregnant women to a variety of benefits, including free prenatal visits, pharmaceuticals, and home-visiting services when the patient is confined to bed. These certificates are usually presented to women on their first prenatal visit (U.S. General Accounting Office, 1991a). Family-planning services and free pharmaceuticals are otherwise provided in public prenatal clinics (United Kingdom) (Goodwin, 1990). These targeted incentives encourage early and periodic prenatal care and routine infant examinations (U.S. General Accounting Office, 1991b). Because of the accessibility to services and the absence of financial barriers, prenatal care appears to be readily used in all six foreign countries (Blondel, Pusch, and Schmidt, 1986).

In these countries, maternal benefits are treated much like disability benefits. However, in the United States, maternity and parental leave were not statutorily protected

under Federal law until 1993. During the 102nd Congress, the Family and Medical Leave Act (1993) was passed, requiring businesses with more than 50 employees to give 12 weeks unpaid leave for family illness or maternity reasons. In contrast, maternal disability in the other six industrialized countries has been an established benefit, with protected leave ranging from 14 weeks (Germany, Japan) to 25 weeks (Canada). Financial support under maternal disability is also more generous than in the United States, which does not guarantee cash maternity benefits. During each pregnancy, all six countries provide periodic payments based on existing disability benefit programs (Canada, Japan, Sweden) or under distinct cash maternity-disability-benefit plans (France, Germany, United Kingdom). Japan also provides pregnant women with a maternity grant sufficient to cover most maternity-related expenses (Employee Benefits Research Institute, 1990a).

## CHILDREN'S HEALTH

In the six industrialized countries, the approach to children's health reflects a common theme: accessible, comprehensive, preventive services beginning at birth and extending into preschool and school health programs. The multiplicity of locations for preventive care is one key feature of this approach (Miller, 1990). Japan, for example, where pediatricians constitute some 4.8 percent of all physicians, relies on a system of more than 850 public health centers and 590 maternal and child health centers to provide a wide range of preventive services to newborns, infants, and older children (Japan Research Institute on Child Welfare, Inc., 1990). Services include: (1) screening for metabolic diseases, hypothyroidism, hepatitis B, and neuroblastoma; (2) providing all routine childhood vaccinations; (3)

conducting hearing, vision, and speech screening; and (4) providing special services for low-birth-weight children with disabilities and children with chronic conditions (approximately 95,000), including malignant neoplasms, diabetes mellitus, and birth defects (Japan International Cooperative Agency, 1990). Public health nurses also make home visits to provide preventive services to high-risk children.

As part of an extensive school program in France for preschool children, a health care team, including a physician, nurse, child psychologist, and social worker, provides language and psychomotor skills assessment, hearing and vision screening, and physical examinations (U.S. House of Representatives, 1990). These children also may receive preventive care from public maternal and child health centers or from a private provider. When a medical problem is identified, the child is referred to the patient's physician for further evaluation and treatment. When children enter the elementary school system, a health care team continues to provide periodic evaluation and screening of students. School health services are coordinated with other school services to address health education and counseling issues such as nutrition.

Sweden employs a system of child health centers throughout the country that performs health and developmental assessments for infants and children. These centers also provide free immunizations for preschool children and conduct vision, hearing, and speech screening (Kohler and Jakobsson, 1991). School health programs provide continued screening and assessment and also provide health education directed at alcohol and tobacco use (Kohler and Jakobsson, 1987). Sweden instituted an aggressive dental health program for children in the 1970s. This

screening program involved counseling on oral hygiene, diet, and fluoride supplements, and was associated with a decline in the percent of children with dental caries (from 65 percent in 1973 to 30 percent in 1983) (Kohler and Jakobsson, 1991).

Most pediatric care in the United Kingdom is provided through general practitioners who, under the British National Health Service, receive annual bonuses for achieving high immunization rates among their pediatric patients. Parents may obtain preventive services for their children from their general practitioner or from 1 of more than 3,000 community clinics. Utilization of well-child examinations is estimated to be greater than 95 percent for infants under 1 year of age and approximately 70 percent for children 1-5 years of age (Williams and Miller, 1991). In addition, the Home Visiting Service (HVS) provides preventive services and health promotion at home to high-risk children or children without ready access to a physician.

The HVS, which dates back to the late 1800s, has generally focused on maternal and child health, drawing upon the skills of registered nurses who frequently have additional training in public health. HVS nurses provide screening, counseling, and health education services in order to identify existing or potential problems. These nurses provide regular home visits to newborns and preventive counseling on breastfeeding, injury prevention, childhood immunizations, and health care. HVS services for children usually include one prenatal visit and five visits from birth to 5 years of age. Although all British citizens are eligible for HVS services, frequent limitations on resources have focused services on children, especially high-risk children, or children in certain catchment areas (U.S. General Accounting Office, 1990). Studies evaluating the efficacy of the

Table 3

**Children's Access to Health Care and Benefits, and Health Status Measures for Seven Industrialized Countries, by Country**

Country	Percent of Children Under 19 Years of Age Without Insurance	Infant Mortality Rate per 1,000 Live Births	National Home Visiting Program Available	Percent of Low-Birth-Weight Births	Universal Periodic Preventive Screening	Percent of Children Under 2 Years of Age Receiving Immunization		
						Diphtheria-Pertussis-Tetanus	Oral Polio	Measles-Mumps-Rubella
United States	14.6	9.80	No	7	No	57	57	57
Canada	<1	7.20	Limited	6	Yes	85	85	85
Germany	<1	7.36	Limited	5	Yes	70	85	70
France	<1	7.44	National	6	Yes	85	85	64
Sweden	<1	5.77	National	4	Yes	95	95	94
Japan	<1	4.59	National	5	Yes	90	95	65-70
United Kingdom	<1	8.42	National	7	Yes	85	90	89

SOURCES: (Blondel, Pusch, and Schmidt, 1986); (Employee Benefits Research Institute, 1993); (Ierodiaconou, 1986); (Miller, 1988); (National Commission to Prevent Infant Mortality, 1992); (United Nations International Children's Emergency Fund, 1991); (U.S. General Accounting Office, 1993a); (Williams and Miller, 1991).

HVS program suggest that it has been successful in teaching health promotion and disease prevention, increasing rates of immunization, and reducing hospitalizations for infants and children (Select Committee on Children, Youth, and Families, 1990).

Germany, with roughly 6 percent of all physicians identified as pediatricians (compared with roughly 7 percent in the United States), provides most pediatric care through private, rather than public, health clinics (Williams and Miller, 1991; Federal Ministry for Youth, Family Affairs, Women and Health, 1988). Routine newborn screening includes hypothyroidism, phenylketonuria, and galactosemia (Williams and Miller, 1991). (In the United States, only the first two are routinely screened.) In Germany, infants and preschool children are entitled to a predetermined number of free comprehensive examinations. Immunizations are administered free of charge. Public clinics provide limited preventive services, such as immunizations, primarily to poor families or those without insurance (such as immigrant families) (U.S. General Accounting Office, 1993a). Home visiting is available, but only for exceptional circumstances.

Canada, although it has not established a governmental agency formally charged with responsibility for maternal and child health issues, provides comprehensive pediatric services under its universal system of health insurance. Many provinces have developed an extensive network of community health centers that deliver a wide range of preventive services, including well-baby care, postpartum care, and immunizations (Pless, 1990).

The Canadian Task Force on the Periodic Health Examination in 1979 released the first national recommendations for periodic preventive services. These include recommendations on the content and timing of well-

baby preventive services (Canadian Task Force on the Periodic Health Examination, 1979; Gilbert et al., 1984; Rourke and Rourke, 1985). For many provinces, these well-baby services—screening, counseling, and immunizations—are provided through community health agencies using community health nurses and physicians in addition to office-based care (Hemmelgarn et al., 1992). Some communities have established regionalized special programs, such as for high-risk perinatal care. Although health insurance benefits may vary somewhat among Canada's provinces, utilization of children's services does not involve cost sharing.

Other measures of preventive health services and access to preventive care for infants and children include rates of childhood immunization and percent of children without health insurance (Table 3). For all six foreign countries, immunization rates for children under 2 years of age are 70-95 percent for the diphtheria-pertussis-tetanus (DPT) and oral polio vaccines. With respect to measles vaccination, three of these countries have achieved immunization rates of greater than 85 percent (United Nations International Children's Emergency Fund, 1991). Measles immunization rates are lower for children in Germany, Japan, and France, and appear to be related to timing of vaccine approval and provider concerns over vaccine side effects (U.S. General Accounting Office, 1993c). This compares with estimated immunization rates over the past decade of roughly 57 percent for this same age group in the United States (U.S. General Accounting Office, 1993a). However, data from the 1992 National Health Interview Survey suggest that immunization rates may be increasing in the United States (DPT, 83.0 percent; oral polio, 72.4 percent; and measles, 82.5 percent), although underimmunization continues to remain a problem

for low-income children and children of races other than white (Centers for Disease Control and Prevention, 1994).

By providing comprehensive services using a combination of public clinics, school-based programs, and private office-based care, children in these countries have a broad range of entry points into the health care system. In addition, virtually all children in these six countries have health insurance. This compares with the roughly 12.9 percent of children under 19 years of age in the United States who do not have health insurance (Employee Benefits Research Institute, 1993).

## SUMMARY

The six foreign industrialized countries in this study reflect a wide range of health care systems (single-payer, multipayer, mixed private and public insurance, centralized and decentralized), differing financing arrangements (employer-based sickness funds, payroll- and personal-income-tax-financed), and broad cost-containment strategies (global budgets, provider fee schedules, and utilization controls). Despite spending considerably less than the United States, these countries have health outcomes, reflected in rates of infant and maternal mortality, low birth weight, and childhood immunization, that do not appear to be compromised and generally surpass those of the United States.

To achieve these outcomes, these six countries offer various models of health care programs for children and pregnant women. A recurrent theme among them, however, is the high priority given to preventive services. Prenatal care is comprehensive and readily accessible and does not involve financial barriers such as cost sharing or demonstration of insurance status as a prerequisite to care. By contrast, some

16.2 percent of all women of childbearing age in the United States are without health insurance (Employee Benefits Research Institute, 1993), a factor that has been associated with more frequent adverse natal outcomes in this country (Braverman et al., 1989). In the six countries, when necessary, as in the case of high-risk pregnancies, prenatal care may also include outreach services provided through visiting nurses. Prenatal care and childbirth involve a wide range of providers, frequently including non-physicians. For mothers working outside the home, maternity benefits are financially comparable to earned income and extend for periods well beyond the time allotted in the United States. These focused and comprehensive approaches likely contribute to the improved infant status and pregnancy outcomes seen in the six countries.

With respect to children's services, all six countries provide accessible and comprehensive infant and pediatric programs beginning at birth. Children receive a full range of preventive services that have been recommended in this country as clinically effective (U.S. Preventive Services Task Force, 1989; U.S. Department of Health and Human Services, 1993), including metabolic screening, vision, hearing and speech evaluation, early childhood immunization, dental care, and preventive counseling (injury prevention, tobacco and substance abuse, nutrition, and fitness). Services are delivered through private providers in office-based settings, as well as through a system of public clinics that are later supplanted by school-based programs. In some countries, providers and parents are given financial incentives to increase the number of children receiving certain preventive services, such as immunizations. As a result, the vast majority of infants (80-97 percent) in most of these countries (Japan, France, Germany, United

Kingdom) receive a broad range of recommended preventive services (U.S. General Accounting Office, 1993c). More than 50 percent of preschoolers appear to receive preventive care, compared with 42 percent or less in the United States (Short and Lefkowitz, 1992; Newacheck and Halfon, 1988; U.S. General Accounting Office, 1993c). In all six countries, virtually all children have health insurance. This compares with 14.5 percent of children under 18 years of age without health insurance in the United States.

The international models in this study provide evidence that a wide range of health care systems based on differing financing and delivery mechanisms and cost-containment strategies can avoid creating significant numbers of uninsured, provide a wide range of preventive services, and avoid compromising health outcomes.

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