

## **The Value of the Poison Control Center**

Report of a working group of Poison Control Center representatives,  
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Members: Leo Artalejo III, PharmD, West Texas Regional Poison Center - El Paso  
Barbara Crouch, PharmD, Utah Poison Control Center – Salt Lake City  
Robert J. Geller, MD, Georgia Poison Center - Atlanta  
Steven Marcus, MD, New Jersey Poison & Information Education System - Newark  
Jay Schauben, PharmD, Florida / USVI Poison Information Center-Jacksonville

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## **The Value of the Poison Control Center Executive Summary**

**Background:** Recognition of the many services that poison control centers (PCCs) provide argues for funding and public support. PCCs provide direct patient health care services to the general public and health care professionals, and strengthen the services provided by public health entities and health care providers. It has been estimated previously that every dollar spent on PCCs saves \$7 in healthcare costs; based on current data, this may be an underestimate.

**Accessible and Affordable Healthcare is Provided by Poison Centers:** All US PCCs provide 24-hour emergency and information hotline services via the National Poison Center Toll-Free Telephone Hotline (1-800-222-1222); essential follow-up calls regarding the continuing care of poison exposures; education; real-time, nationwide data collection providing epidemiologic surveillance; and access to emergency information as an integral part of local, state, and national emergency preparedness and response for natural and manmade disasters.

**Who Are the Stakeholders Benefiting from PCC Services:** Stakeholders that benefit from PCC services include government, the general public, health care providers (institutions and practitioners), public health entities, and insurers.

### **Value Provided by PCCs:**

- **Patient Care Activities:** PCCs, through their health professional staff, provide assessment, triage, management and continued monitoring of more than 2.4 million poison exposures in the U.S. each year at no direct cost to the patient, the practitioner or health care institution.
- **Poison Center Cost Avoidance/Savings:** Multiple studies have demonstrated that accurate assessment and triage of poisoning exposures by PCCs saves dollars by eliminating or reducing the expense of unnecessary trips to an emergency department. Consultation with a PCC can significantly decrease the patient's length of stay in a hospital and decrease hospital cost. The major beneficiaries include the self-pay or co-paying general public, health care institution, commercial insurance companies, and governmental public health funding agencies.
- **Toxico- and Public Health Surveillance:** Real-time PCC data, collected by PCCs nationwide into a national database, triggers the recognition of a variety of public health threats and provides a tracking mechanism for those events.
- **Public Education:** PCCs use multi-lingual public education to promote poisoning prevention and awareness of the availability of PCCs to the general population, and to take the message of poison prevention to the public and health professionals in a variety of settings.
- **Professional Education:** PCC expertise provides academic training and targeted education to health care providers of all types.

## **The Value of the Poison Control Center**

Poison centers (PCCs), often called “poison control centers”, have long gone unrecognized as playing a major role in protecting the public health of our population. Perpetually functioning on a very limited patchwork of local, state and federal funding, they have provided vital health services to the general public and health care professional, for over half a century. The PCC’s provision of direct patient care services to residential callers, health care professionals and institutions alike is added value to the services provided by many governmental public health entities, health care providers, and commercial insurance carriers, just to name a few.

### **Accessible and Affordable Healthcare is Provided by Poison Centers**

The care provided by all Regional Poison Centers certified by the American Association of Poison Control Centers includes:

- 24-hour emergency and information hotline services via the National Poison Center Toll-Free Telephone Hotline (1-800-222-1222) to the general public (regardless of their social, economic, health insurability status, or language preference), and to healthcare professionals, emergency responders and governmental agencies. Calls are directly answered by a health professional, often referred to as a “specialist in poison information”. After a potential exposure to a poison, this person provides multi-lingual patient assessments, medical care recommendations and follow-up services. PCC services are accessible and available to all communities, including all underserved and indigent populations, in over 150 languages and via telecommunications devices for the deaf and hearing impaired (TDD)
- Essential follow-up calls to assess and advise regarding the continuing care for known or suspected poison exposures
- Patient management guidelines to healthcare professionals and healthcare facilities for the care of their poisoned patients
- Professional healthcare provider education
- Public multi-lingual poison prevention education
- 24-hour-a-day, real-time, nationwide data collection on poisoning and adverse event tracking providing epidemiologic surveillance of public health across the nation for governmental agencies
- Emergency information as an integral part of emergency response at the local, state and national levels in response to natural and manmade disasters, including chemical, biologic and radiological terrorism surveillance and mitigation

What would be the result if all PCCs closed? Available data shows that more than 80% of PCC callers are managed by the PCCs without the use of hospital services. In the absence of a PCC to call, many of those individuals with known or suspected toxic exposures currently managed by a PCC would seek significantly more costly and less accessible healthcare alternatives such as emergency departments, private physician offices, 911/ EMS agencies, fire departments, or urgent care centers<sup>1</sup>. Some may not seek help at all, increasing the likelihood of more serious adverse outcomes of these exposures. Likewise, all of the PCC-

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provided cost-effective poison prevention activities would cease. When PCC services were unavailable in the State of Louisiana for a period of 2 years due to lack of funding for the center, the rate of home management after poison exposures dropped in half in Louisiana while the rate did not change in Alabama, whose PCC services continued uninterrupted<sup>2</sup>.

If PCC services were unavailable, the resultant increase in the cost of healthcare due to inefficient use of medical resources and the increase in the number of preventable poisonings would be significant. It has been estimated that every dollar spent on PCCs saves \$7 in healthcare costs<sup>3</sup>. PCCs are second only to childhood immunization programs in their ability to provide cost avoidance in public health delivery. The reduction in poison injury morbidity and mortality rates occurs across all age, social and economic groups. Likewise, unnecessary transport of poisoned patients by EMS to emergency departments occurs less often, reducing both the overall ED cost and the extent of ED overcrowding, which in turn improves the availability of limited emergency resources for more severe medical emergencies.

### Characterization of the Value Added to Stakeholders Benefiting by PCC Services

<b>PCC Core Services</b>	<b>General Public</b>	<b>Health Care Providers (Institutions and Practitioners)</b>	<b>Health Insurance Providers</b>	<b>Public Health</b>
<b>Surveillance</b>		X		X
<b>Emergency Response Support</b>	X	X	X	X
<b>Patient Care Activities</b>	X	X	X	
<b>Public Education</b>	X	X	X	X
<b>Professional Education</b>		X		X
<b>Cost Avoidance/Savings</b>	X	X	X	X

### Toxico- and Public Health Surveillance

Although patient care has long been considered the core function of the nation's PCCs, the emergence of the need for public health surveillance and toxicosurveillance has added a new direct benefit for local, state and national public health protection efforts. Real-time PCC data, collected minute by minute by 61 PCCs nationwide, are collated into a coherent national database almost instantaneously. This information provides immediate feedback, triggers the recognition of a variety of public health threats, and provides a tracking mechanism for those events. PCC data is currently used to monitor emergence of drug and substance abuse threats, food/medication contamination, adverse effects of new and older medications, WMD threats, pediatric poisoning trends, and suicide trends, just to name a few.

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Even selected illnesses in the general population, health threats from natural disasters (such as hurricanes), and food/waterborne disease threats are monitored. This comprehensive, real-time, nationwide data collection and reporting system, developed by the American Association of Poison Control Centers and its member centers, is unique in the United States. Sophisticated and automated surveillance programs, enterprise level reports, and GIS mapping capabilities provide public health entities involved with local, regional or national efforts a tool for recognition and mitigation of threats. Health care facilities and health care practitioners also benefit greatly by observing patterns of abuse, contamination, adverse effects and illness in the population which enable greater ability to predict and anticipate direct patient care needs.

### **Patient Care Activities**

PCCs are staffed 24 hours a day by nurses, pharmacists, physicians, and other highly specialized healthcare professionals. With their network of nationally certified Specialists in Poison Information (SPIs) and board-certified toxicologists and other subspecialist physicians, PCCs provide assessment, triage, management and the continued monitoring of poisoned patients. Acting as either primary care providers in the home care solution, or as consultants to health care practitioners and institutions, PCC's assess and manage more than 2.4 million poison exposures in the U.S. each year; at no direct cost to the patient or the practitioner. This direct telephone consultation with healthcare practitioners occurs at no added cost to the patient or the practitioner, a unique role in the US healthcare system.

Through these activities, PCCs can assess the likely severity of the exposure, and reassure individuals at low risk, in order to avoid an unnecessary visit to a health care provider, be it a physician's office, free-standing emergency center or emergency department. Likewise, those individuals with mild toxic potential can be assessed and managed at home by the PCC health care professional. In cases where a health care facility or emergency transport is needed, the PCC promptly can recommend that this care be obtained and can advise the health care facility about the patient en route.

PCC expertise is available to assist public health agencies in achieving its goals at the local, state and national levels. Whether by public health surveillance efforts, direct consultation or provision of service on behalf of the public health department/agency, PCCs have been supporting these needs and collaborating with these partners for coordinated benefits in the public health arena.

### **Public Education**

Public education is a critical function of PCCs, promoting poisoning prevention and awareness in the general population in an attempt to attenuate the preventable aspects of accidental poisoning exposures. Outreach education messages include both primary prevention education to the public and secondary messages meant to foster awareness of PCC services and increased utilization of the PCC (to allow the cost avoidance benefits of PCC usage to grow). Age- and culturally appropriate primary prevention messages, educational materials, and educational programs are used to focus on fostering a prevention and avoidance posture in the public.

Awareness and education efforts focus on groups most at-risk for poison exposure (small children and older adults), targeting parents of small children, the elderly and many individuals who generally avoid other healthcare settings. Multiple channels of communication are utilized, including print and broadcast media and advising other public health advocates and governmental agencies.

### **Professional Education**

PCC expertise is continuously available to help health care providers address situations in which poisonings are known or suspected. PCCs and their toxicologists offer prompt assistance in identifying poisonings, evaluating poisoned patients, and treating the clinical situations efficiently. The PCCs' ability to readily access current knowledge about toxins and to apply specific experience in the current management of poisonings has been shown to reduce both unnecessary lab studies and to reduce length of stay in the inpatient care setting, as well as to reduce inpatient admissions by safely treating poisoned patients at home under the close monitoring of PCC healthcare professionals. PCCs often provide telephonic consultation with a toxicologist for physicians at the patient bedside, both impacting care of the specific patient and improving the capability of the physician to treat subsequent patients.

PCC expertise is also continuously available to assist public health in achieving its goals at the local, state, and national levels, through direct services such as call centers operated on behalf public health departments and through indirect support for public health by consultation about toxin releases, food poisoning episodes, and other situations of concern.

Additionally, PCC professional education is extended through the provision of toxicology experience to physicians in their medical school and residency training, to pharmacists in their Pharm.D. student and residency training, and to nurses in their student and specialty training. Professional education is provided through the PCC's continual and extensive in-service training of healthcare professionals in the most current patient treatment and management guidelines for known or suspected exposures to poisons.

### Poison Center Cost Avoidance/Savings

Substantial cost avoidance has been attributed to PCC reduction in unnecessary ED care, as well as reduced patient and family anxiety, when PCCs provide accurate assessment and triage of poisoning exposures. The many public health and cost benefits from the PCCs pre-hospital management of patients not needing ED visits favorably impacts almost all the major beneficiaries of PCCs care outlined in the table above. It benefits the self-pay or co-paying general public, the health care institution supporting the costs for indigent care, the commercial insurance companies, and governmental public health funding agencies. PCCs can assess and manage many cases at home, obviating the need for acute inpatient hospitalization<sup>1,2,3,6,7</sup>. Further, this reduction in medically-unnecessary ED visits decrease overcrowding in our EDs and minimizes needless EMS ambulance runs, freeing critical emergency medical staff to more effectively handle true emergencies. In the event of a sudden increase in demand for health care, the PCC's ability to assist will enhance existing regional surge capacity.

PCCs' care extends also to the hospitalized poisoned patient. Consultation with a PCC can significantly decrease the patient's length of stay in a hospital by more effective use of the laboratory testing, more efficient use of antidotes and appropriate monitoring practices<sup>5,6</sup>. Patients managed with poison center assistance had on average, shorter hospitalizations (median length of stay of 3.5 days vs. 6.5 days without poison center assistance) resulting in savings of more than \$2,100 per patient in 2005 dollars<sup>4,5,6,7</sup>. In 2005, Medicare, Medicaid, and the State Child Health Insurance Program (SCHIP) were the primary payers for 47% of nonfatal poisoning hospital admissions, so much of these savings directly benefited Federal and State governments<sup>4,7,8</sup>. The annual cost savings attributable to poison center support for inpatient care of poisoned patients is more than 9 times greater than the estimated \$100M total cost of running all American poison centers if all poison centers were fully funded<sup>4,9</sup>.

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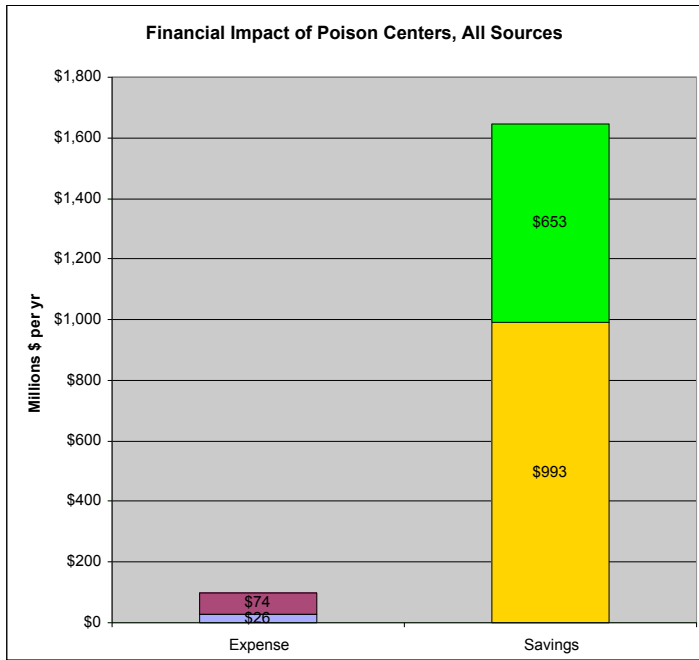
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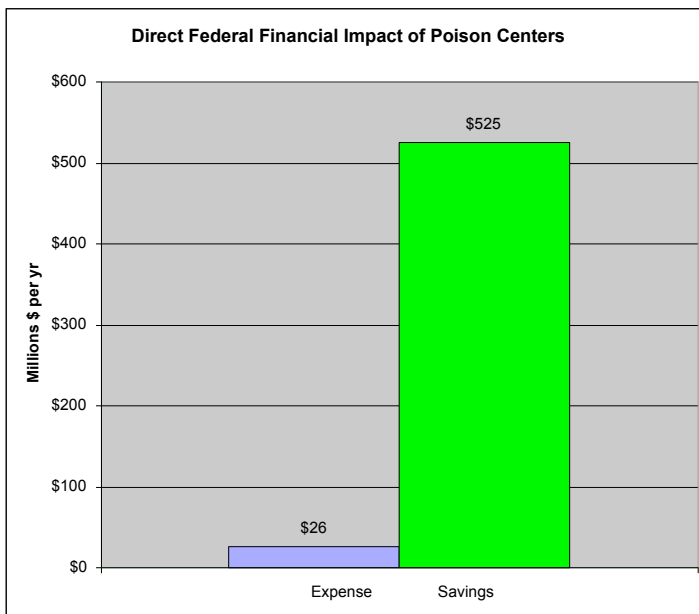
# The Value of the Poison Control Center



Comparison of Financial Expenses and Savings Attributable to Poison Centers, US, 2005.

Expenses:  
 \$26M – direct Federal contribution,  
 \$74M – other sources (IOM)

Savings:  
 \$993M – reduced length of stay for poisonings attributable to Poison Center assistance  
 \$653M – cost avoidance from reduction of ED visits by prehospital management of poison exposures by Poison Centers



Comparison of Direct Federal Financial Expense and Savings Attributable to Poison Centers, US, 2005

Direct Federal Contribution: \$26M

Direct Federal Savings from Federal Medicare (22% of healthcare spending) and Federal share of Medicaid and SCHIP (9.9% of healthcare spending): \$525M

State Savings from State share of Medicaid and Medicaid: additional \$248M (15% of healthcare spending)