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# Use of Old Order Anabaptist-Produced Publications to Develop an Injury Surveillance System for Old Order Populations

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## Abstract

To achieve a clearer picture of injuries within Old Order Anabaptist communities, Purdue University's Agricultural Safety and Health Program collaborated with the Young Center for Anabaptist and Pietist Studies at Elizabethtown College to conduct a pilot study on this topic. The team developed an injury surveillance system based not on traditional injury data sources and instruments but on data provided in Old Order-produced publications, specifically *The Budget*, *Die Botschaft*, and *The Diary*. While traditional surveillance methods have generally yielded injury data on less than 30 Old Order cases per year, the Old Order Injury Database, developed through the Purdue/Young Center collaboration, yielded data on 1,153 cases for the target year analyzed. While the primary focus of the study was farm-related injuries, it is believed that this type of surveillance system could be used by professionals in a variety of health-related fields to assist in gathering data and developing culturally appropriate interventions for Old Order groups.

## Keywords

farm safety, injury, fatality, surveillance, Amish, Old Order Mennonite

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## **Introduction and Background**

Accurate quantification, analysis, and reporting of injury statistics is challenging under any circumstances. However, difficulties are compounded significantly when the target population is a unique subculture, such as the Old Order Anabaptist community. Old Order Anabaptists, primarily the Amish and Old Order Mennonites, have many distinctive socio-religious beliefs and practices, including a desire to remain separate, to a significant degree, from the larger society. Old Order beliefs and practices also result in atypical risk factors and sources of injury within the population, including increased risk from animal contact necessitated by the use of horse-drawn farm equipment and buggies, unique machinery hazards associated with the utilization of alternate, ostensibly antiquated farming technologies, and a higher risk of fire-related injuries due to the greater presence of flammable fuels within households, coupled with a general absence of smoke detectors.

To further complicate injury analysis, conventional injury surveillance methods and data generally do not separate Old Order injuries from those of the general population. This makes it difficult to gauge the nature and scope of injuries within these groups and thus hampers efforts to develop appropriate safety interventions. In addition, conventional safety interventions are often ineffective because they do not address many of the unique technologies used by Old Order groups, and they lack the cultural sensitivity needed to effectively reach this population—one which does not use modern media formats, such as television, videos, or the internet, and which sometimes rejects printed materials that offend their socio-religious standards.

With the ultimate purpose of enhancing the ability of professionals to design appropriate safety interventions, this paper describes the development of an injury surveillance method to record and analyze injuries within the Old Order Anabaptist population. Instead of utilizing conventional data sources, this surveillance method drew data from reports generated within the Old Order community itself—a system that gave a unique and surprisingly comprehensive injury picture not found in other injury data collection methods.

### ***Defining the Target Population***

Kraybill and Hostetter (2001) separate the overall Anabaptist community into three groups—traditional, transitional, and transformational—though the boundaries between them are somewhat amorphous. The traditional, or Old Order, groups are distinguished from more progressive or liberal sects by such factors as their use of horse-drawn transportation, a special Pennsylvania German dialect, eighth grade education in private schools, and limited use of mainstream technologies, such as telephones and electricity. The main subgroups of the traditional Anabaptists include the Old Order Amish, New Order Amish, Old Order Mennonites, and Old Order Brethren (Kraybill and Hostetter 2001). These groups were included as potential target populations in this study.

### ***Socio-Religious Safety Issues***

Even though there is a trend toward off-farm work, agriculture has traditionally been the occupation of choice for Old Order Anabaptists (Kraybill 2001). Historically, farm work in the overall U.S. population has been ranked as one of the most hazardous occupations, along with mining and construction (National Safety Council 2013). Unlike their contemporary counterparts, Old Order farmers have generally not accepted many new technologies that have reduced the amount of labor required to farm *and* many of the traditional hazards, such as exposure to livestock. In addition to risks from the high level of animal contact needed for horse-drawn farming, Old Order farmers often modify standard farm equipment for horse-drawn use and in the conversion, frequently circumvent or eliminate the manufacturers' safety features.

Another safety concern in Old Order households is the presence of large numbers of children. Due in part to prohibitions against artificial means of birth control, the average number of live births per Amish couple is seven (Hostetler 1993; Kraybill 2001). In addition, Old Order communities typically stress the early incorporation of children into farm work. Amish children are expected to begin helping with chores soon after they can walk and may begin driving teams of horses before the age of 10 (Kraybill 2001).

As a result of urban sprawl and inflated land prices, a scarcity of farm land in some areas has caused many Old Order Anabaptist to turn to factory jobs, carpentry, craft work (e.g., furniture making), and the ownership of small businesses. In some communities, more than two-thirds of household heads are working in non-agricultural occupations. These changes have led to unique safety issues, such as the Old Order refusal to wear hard hats on construction sites—an objection for which they and other religious groups have received an exemption from OSHA, the Occupational Safety and Health Administration (OSHA 1994). Also, in the past, Old Order youth ages 13 to 15 would begin apprenticing on family or neighboring farms after completing eight years of formal education. However, with fewer families engaged in full-time farming, some youth have sought employment in occupations normally considered too dangerous for their ages, such as work in wood processing facilities and metal fabrication shops. Due to social and political pressures in this area, an exemption was made in the Fair Labor Standards Act to allow Old Order youth to participate in certain work previously forbidden under federal law (U.S. House 2003).

Although their cultural practices may increase risk of injuries in some areas, their lifestyles substantially reduce safety risks in other areas, including injuries involving motor vehicles, homicides, suicides, electrocution, and many sports-related activities.

### ***Background on Safety and Health Research in Old Order Communities***

In 1998, the Purdue University Agricultural Safety and Health Program (PUASHP) established the only known binational (United States and Canadian) database of farm-related fatalities among members of Old Order groups. Preliminary data from this source summarized

farm-related fatalities identified between 1980 and 2000. The significant conclusions in that report included the finding that approximately 64% of the identified farm fatality cases were children 15 years and under. Run-over incidents (most often by a horse-drawn vehicle or implement) were the most frequent primary cause of fatal injuries, while animal-related behavior was the most frequent secondary cause, reflecting agricultural practices that remain highly dependent upon the use of horses and mules (Jones and Field 2002).

Other significant studies of Amish morbidity and mortality by Hubler and Hupcey (2002), Acheson (1994), and Jones (1990) showed unique risk factors for Old Order groups but similar injury and disease patterns in comparison to the larger rural population.

In 2002, PUASHP received a grant from the National Institute on Occupational Safety and Health (NIOSH) to expand its study of Old Order *fatalities* into a more comprehensive analysis of Old Order *injuries*, particularly farm-related ones. The NIOSH grant funded the development of the surveillance system described in this paper.

## Methods

Given the focus of the grant, the highly agrarian nature of Old Order communities, and the agricultural background of the grant's primary investigators, the authors looked to existing agricultural safety and health reporting models as primary examples for the development of the Old Order injury surveillance system.

In general, systematic surveillance and classification of agriculture-related injuries is problematic (Yoder and Murphy 2000). Some of the complicating factors include differing sources of data, different definitions of terms, and different numerator and denominator sources (Purschwitz 1992). For example, some reporters count all injuries that occur on farm property, while others count only those occurring during agricultural work. Some define children as individuals less than 14 years of age, while others use age boundaries of 15 or 18 years (Purschwitz 1992).

Information on agricultural fatalities is usually more prevalent than that on non-fatal injuries (Purschwitz 1992). Part of the reason for sparse information concerning non-fatal injuries is that OSHA requires injury reports only from agricultural enterprises having 11 or more employees, thereby eschewing data from most family farms (Gunderson, et. al. 1990). Another reason for the greater body of information on fatalities is that they can be quantified from such records as death certificates and coroners' reports (Purschwitz 1992). However, the use of death certificates for providing accurate epidemiologic information has been questioned, primarily due to inconsistencies in the coding of certain components, such as cause of death, occupation of deceased, and place of injury (Seltzer, et al. 1990). A study by Messite and Stellman (1996) showed significant inaccuracies in the way that subjects—some of them practicing internists—coded sample death certificate cases.

Fatalities and serious injuries tend to draw more attention from the press (Gunderson, et al. 1990; Purschwitz 1992); therefore, newspaper clipping services can serve as a helpful source of data for obtaining an overview of these types of incidents (Purschwitz 1992) and for augmenting information from other sources, such as death certificates (Gunderson, et al. 1990; Seltzer, et al. 1990).

### ***Development of the Data Collection Instrument***

Since several established sources of agricultural injury data exist, the authors looked to them as models for the Old Order Anabaptist Injury Database, primarily for determining the main categories of information most beneficial for coding cases and for comparison with injury statistics from the general population. Some of the main sources of data include the National Safety Council, NIOSH, and the U.S. Department of Labor's Bureau of Labor Statistics. Agricultural injury data collection instruments developed by Purschwitz (1989) and Beer (2004)<sup>3</sup> were also analyzed for format and content.

In addition, the Farm and Agricultural Injury Classification (FAIC) Code, developed by the American Society of Agricultural and Biological Engineers, was used in formulating the Old Order injury data collection instrument. Developed to "facilitate consistent and accurate classification of farm and agriculturally related fatalities and injuries" (ASAE 2002), the FAIC Code delineates 11 categories of agricultural injuries and gives examples of activities that would be included and excluded within each category. For example, FAIC Category 1, "Farm Production Work," includes such activities as operating tractors for farm work but excludes activities performed by workers who are contracted for specific agricultural production work. (These latter activities fall under a different FAIC category.)

In developing the surveillance instrument, PUASHP staff members derived some of the main categories from standard agricultural injury surveillance instruments and data sources, such as age, sex, time of day of injury, site of incident, primary source of injury, and equipment/structures involved. The Young Center staff provided new categories unique to Old Order groups. For example, categories were added to capture information concerning each victim's Old Order community or settlement location, group affiliation (e.g., Old Order Amish or Old Order Mennonite), and sub-affiliation (e.g., Swartzentruber Amish or Lancaster Amish).

In addition, many Old Order-specific variables were added to the standard surveillance categories. For example, under "Primary Activity Involved," such variables as ice making and maple sugaring were added; under "Equipment/Structures Involved," steam engines, steel-wheeled tractors, horse-drawn wagons, and other devices were added; under "Medical Response," variables like folk practitioner and home remedy were included. To help facilitate comparison between the Old Order database and other agricultural injury databases, each farm-related Old Order injury was assigned to a FAIC Code category.

The data collection instrument was ultimately quantified in a Microsoft Access Database.

This application provided greater capacity for form development and querying than a simple spreadsheet but was not as complicated to use as other database programs such as Oracle.

### *Selection of Data Sources*

The PUASHP Old Order fatality summary published in 2002 primarily used newspaper clippings and university-generated fatality summaries as data sources. These sources, however, did not provide a comprehensive view or in-depth approach due to the sporadic reporting of injuries and difficulty in collecting nationwide clippings from a multitude of newspapers. In addition, as previously noted, standard newspapers have a bias toward reporting fatalities and serious injuries. The use of death certificates and medical records for the new database was also ruled out due to the logistical difficulty of obtaining enough of these documents to provide a representative sample, because these documents would rarely, if ever, identify the victim as Old Order Anabaptist, and because they generally do not provide detailed information about causative factors in deaths. Further, since most Old Order groups are reluctant to participate in surveys, these surveillance options were likewise eliminated.

The authors, therefore, looked to the Old Order community itself as the primary source of data. Old Order groups eschew most modern forms of media, such as television and the internet, and have more interest in local news than national and world events (Scott 2004). However, as Hostetler (1993) indicates, these groups are sociologically “high-context” cultures, meaning that they are deeply involved with one another, and therefore information is widely shared. This information sharing is important not only within an individual Old Order community but also among the approximately 525 to 550 settlements of Old Order Amish, New Order Amish, Old Order Mennonites, and Old Order Brethren in North America today.<sup>4</sup> One primary link between members of the Old Order communities are weekly, biweekly, and monthly publications, specifically *The Budget*, *Die Botschaft*, and *The Diary*.

*The Budget* is the oldest Old Order publication with its first issue published on May 15, 1890 (Luthy 1978a). Although this biweekly newspaper has never been owned by a member of an Old Order congregation, its primary contributors and audience are Old Order. *The Budget* began as a standard village newspaper but soon evolved into a “correspondent newspaper,” one in which the primary material is contributed by correspondents or “scribes” drawn from the paper’s readership (Luthy 1978a). This distinction between Old Order correspondent publications and standard newspapers is important to understanding the reliability of the Old Order data collected for this research project. This issue will be addressed further in discussion below concerning the scribes.

*Die Botschaft* (“The Message”) is a weekly newspaper that began in 1974 out of concern that *The Budget* allowed letters from scribes who had left the Old Order faith for more liberal sects, thereby making such writers “unsound” according to Old Order standards (Hostetler 1993). Like *The Budget*, *Die Botschaft* is also a correspondent newspaper, and many writers send

duplicate letters to both (Luthy 1978b).

*The Diary*, a monthly publication that was started in 1969, originally contained a significant number of historical articles in addition to scribal reports, but more recently has published only information from scribes. One of the distinguishing characteristics of *The Diary* is that it classifies articles under categories, including births, deaths, marriages, ordinations, and, most importantly for this project, accidents.

Each issue of these three publications contains reports from 150 to 300 scribes from Anabaptist communities across North America. The scribal accounts normally cover community events, such as the weather, visitors, weddings, births, and deaths. Accidents and mishaps are also important components of the letters (Yoder 1990; Scott 2004). Whereas most standard media outlets focus on events that “disrupt the normal,” Old Order scribes report on “what makes up the normal” (Byrne 1998). The following contains excerpts from one scribe’s entry from *The Budget*:

We’ve had some freezing weather, but still mild...Donnie Knepp was in church Sun. looking (and probably feeling) bruised, but still a lucky boy. Nobody really knows how it happened, but he may have been trampled and kicked by the horse...Phillip, son of Eli Knepps, cut his thumb off while working at the sawmill. After taking it along to the hospital (Louisville, I think), it was decided to not even try putting it on again...Jerome Grabers from Ewart, Mich. were in the area last week for a short visit with their families...In 2001 there were 131 births, 62 boys and 69 girls... (Graber 2002)

The overall impact of these publications in Old Order communities has been, and continues to be, significant. One Old Order writer stated that *The Budget* has influenced, molded, and held together the Old Order community to a degree understood and appreciated by very few (Yoder 1990). Another stated that, “If it weren’t for *The Budget*, we couldn’t keep in contact with our families” (Garber 2004). A non-Anabaptist journalist said, “*The Budget*, to the Amish, is like CNN, The New York Times, and the Wall Street Journal to the [non-Amish]” (Garber 2004). Fishman (1988) writes of *Die Botschaft* that it entertains, edifies, exercises and strengthens faith, and helps readers stay in touch with each other. Byrne (1998) views *Die Botschaft* as a significant means of maintaining cultural cohesion, strengthening group affiliation, and preserving boundaries within the Old Order community.

To supplement information in the three publications, the investigators also used local community directories that many Old Order settlements produce. These contain a listing of community members, including their occupations and family members’ ages. The demographic data were valuable in supplementing missing information in scribal accounts.

### ***The Scribes***

If the aforementioned Old Order publications are to be considered useful data sources, it



is important to examine the nature of the scribes in regard to their reliability as information contributors. In contrast to standard newspaper reporters, they are unpaid volunteers who generally become scribes by offering their services to the editor of the given publication. In the case of *Die Botschaft*, scribes must be approved by an oversight committee comprised of members of Old Order Congregations (Byrne 1998).

A 2000 survey of scribes from *The Budget* (Yoder and Yoder 2000) provides helpful background information about the scribes. A sub-sample of the survey showed 44 being from Indiana, of whom 38 had provided sufficient information about themselves to ascertain the following demographic characteristics:

- Average age was 56
- Average length of time served as a scribe was 16 years
- Twenty-one identified themselves as housewives, six as widows, four as farmers, three as retired or semi-retired, three as single with no other occupation listed, and one as a buggy shop employee

Concerning the issue of accuracy in the scribes' reporting, Scott (2004) noted that it is likely high given the fact that the close-knit Old Order societies are very concerned about the well-being of their brothers and sisters in the faith. Scribes are reluctant to embarrass themselves by reporting erroneous information, and, moreover, truth-telling is a highly prized virtue in Anabaptist communities. Fishman (1988) states that in their writings, *Die Botschaft* scribes demonstrate considerable awareness of their role, their writing, and their newspaper, adding, "As a group, they tend to be self-critical, mutually supportive, and consistently concerned about the text they individually and jointly create." Byrne (1998) indicates that while most *Die Botschaft* scribal standards are not stated, other scribes and the readers provide much feedback—both for encouragement and censure—thereby maintaining high standards of accountability. The *Die Botschaft* steering committee provides additional oversight.

The validity of scribal reporting is also further supported by the Scriptural basis of the Old Order communities themselves. Kraybill (2001) notes that community members link their eternal salvation to obedience to Biblical teaching, and Hostetler states that members must prove themselves to be worthy, faithful, grateful, and humble. These factors seen in light of the many Biblical admonitions toward honesty, including the Ninth Commandment—"You shall not bear false witness against your neighbor" (Exodus 20:16)—add credence to the supposition that Old Order scribes have a high degree of concern for the accuracy of their writings.

Previous studies have also used Old Order publications as data sources, including a study of farm-related injuries among Amish children (Hubler and Hupcey 2002); the study of a new metabolic disorder among the Amish (Kelley, et al. 2002); and Keiser's (2001) dissertation concerning language change across speech islands. Acheson (1994) utilized Amish community directories in her study of perinatal, infant, and child death rates in an Old Order settlement.

### ***Data Gathering Procedures***

Given the apparent usefulness of scribal accounts in Old Order publications, it was determined that the Young Center staff would read every issue of *The Budget*, *Die Botschaft*, and *The Diary* and record information concerning all relevant injuries listed. Due to the scope of the NIOSH grant, an initial surveillance period of two years (2002 and 2003) was established. Although the focus of the grant was on agricultural injuries, it was decided that since Young Center staff members were planning to read every issue of the three publications, they should also capture information on non-agriculture-related injuries. Therefore, the following categories were added to the instrument: commercial shop, construction site, household, recreation, saw mill, transportation/buggy, and other.

Because of the wide continuum of Anabaptist beliefs, it was essential for the purpose of this project to firmly establish a clear boundary of which scribal reports were to be considered "Old Order." The Old Order fatality summary published by PUASHP in 2002 looked at farming technology as a boundary between Old Order and more liberal groups (i.e., the use of horses or steel-wheeled tractors for field work.) However, for the current database, the authors ultimately chose the use of horse-drawn transportation as the boundary for inclusion of injuries in the database. This was because, according to Young Center staff, horse-drawn transportation is the best and most easily identified indicator of Old Order status. Whereas the use of agricultural technologies varies considerably by church affiliation and regional settlements, the horse and buggy boundary is a consistent cultural characteristic that defines Old Order communities.

### ***Expert Panel Review***

In validating the surveillance system, the authors assembled an expert panel under the auspices of the grant. Expert judgment is data given by an expert in response to a technical problem, and it may be elicited through a variety of processes, including interactive groups. Expert panels are widely used by major industries to elicit expert opinion (Meyer 1991). Groups using these techniques include health industry professionals (Seiler 1973), emergency management organizations (Fried 1989), and the Nuclear Regulatory Commission (Embry 1984).

The expert panel assembled for this project consisted of 14 members with extensive experience in research and/or service provision to Old Order communities. Nine members were working or had worked for the USDA Cooperative Extension Service in regions with high concentrations of Old Order Anabaptists. Two panel members were doctorate-level sociologists specializing in Anabaptist studies, and the other members included an agricultural nurse working in Old Order communities, a widely published author on aspects of Old Order life, and a graduate student researching injuries among Old Order groups.

The expert panel met to review the data collection instrument and surveillance process on two occasions approximately one year apart. The first meeting occurred at the beginning of the development process, prior to using the instrument to collect data. At that meeting, the panel

provided input concerning the validity of potential data sources plus suggestions for pertinent categories and variables needed on the collection instrument. Prior to the second meeting, panel members were mailed copies of the data collection instrument as it was used in the first phase of the project. At that second meeting, the members reviewed the progress of the surveillance process and were updated concerning minor changes in the collection instrument. They made additional suggestions for improving the data collection instrument and approved the overall usefulness and reliability of the surveillance system.

## Findings

Between March 2003 and June 2005, staff members from the Young Center entered 1,817 cases of Old Order Anabaptist injuries into the database. These cases included those from every issue of the 2002 Old Order publications and approximately half of the 2003 issues. The expertise of the Young Center staff allowed them to distinguish between injuries from Old Order communities and those of more liberal groups based on previously stated criteria.

Not every injury report was included in the database. The Young Center staff generally included only those that required some type of medical intervention, either by a professional or through a home remedy. Most minor, untreated injuries reported by scribes were not included. Also omitted were cases where the scribal accounts were too sketchy to provide sufficient information for coding (e.g., the mention that someone broke their leg, without any other details). The level of detail of cases varied with the writing styles of the scribes, and many scribes provided much more detail than could be captured on the data collection instrument.

Supplemental information on cases, especially regarding age and group affiliation of victims, was sometimes derived from the Old Order community directories. In some cases, scribes did not provide specific ages but indicated that the victim was married, had children, was a student in school, or was obviously a small child. Therefore, an *age range* variable was added to the data collection instrument to allow for age coding in the following categories: child/adolescent, adult, elderly, and unknown.

The current surveillance method yielded a much higher number of cases than previous efforts. For example, a review of PUASHP clippings from non-Old Order newspapers for a two-year period yielded a total of 56 injury cases—an average of 28 per year. Similarly, a survey by the investigators of Google News Alerts (which summarize Web-based news articles containing the keyword “Amish”) for 2011 to 2012 yielded an average of approximately 28 injuries per year. That is 2.4% the number of cases (1,153) recorded in the Old Order database for 2002.

Analysis of the 1,153 cases from 2002 was completed by Kunkler in which she summarized unintentional childhood injuries within Old Order communities. She noted that the database permitted consistent and accurate query and analysis of injury data so that they could be presented in numerical and rate form (Kunkler, et al. 2004).

The current surveillance system appears to provide a more representative view of injuries within the Old Order population than conventional surveillance methods provide for the general agricultural or rural populations. For example, non-fatal injuries are frequently unreported or misreported for the overall population because of the absence of a legally mandated reporting requirement, the lack of a standardized reporting system, and because newspapers often do not consider such injuries newsworthy. Therefore, statistics concerning non-fatal injuries in the overall population are generally estimated by extrapolating data from surveys of small segments of the population or from emergency room records. In contrast, Old Order publications generally provide a relatively high level of detail concerning non-fatal injuries—in fact, often almost to the point of triviality. Therefore, using the surveillance system, the scope of non-fatal Old Order injuries can be estimated from a large number of recorded incidents, rather than from extrapolations from small numbers of surveys or medical records. In addition, fatalities and more serious injuries often warrant reports from multiple scribes. Such incidents are covered in more than one Old Order publication, or are addressed in more than one issue of the same publication by different scribes, thereby providing detail rarely found in standard injury data sources. Due to the close-knit nature of the communities as reflected in these publications, it is believed that all injury-related fatalities were captured through scribal reports during the surveillance period.

The backgrounds of the scribes are also seen as factors contributing to the reliability of the injury picture presented by the current surveillance system. With one source (cited earlier) showing an average tenure of 16 years for Indiana scribes, it can be assumed that, while the scribes do not report on all injuries occurring within their communities, there is likely a high degree of consistency in their individual reporting styles. And as previously indicated, a lack of consistency is one of the major problems in standard injury surveillance procedures. In addition, the level of feedback scribes receive, combined with the community's socio-religious expectations of their conduct, provide a motivation for accuracy not found within the mainstream news community. Scribes also fulfill their obligations with no motivation for financial gain (since they are unpaid) or for personal fame or publicity (the antithesis of the highly cherished Old Order value of humility).

## **Conclusion**

Because of funding limitations, data collection through the Old Order Anabaptist injury surveillance system and database was limited to 2002 to 2003. However, it provided a more detailed picture of injury prevalence in these communities than was available through any other available method. The number of injury cases far exceeded that from other sources, and the accuracy of the injury reports is believed to be reliable because of the strong personal investment and socio-religious motivation of the reporting scribes.

This type of database can enable professionals to identify safety needs more effectively and thereby give them a greater capacity for developing the culturally sensitive interventions for populations that use distinctive technologies and embrace distinctive cultural practices. It may

also be possible to use the Old Order publications cited in the study to disseminate injury prevention information that directly corresponds to the type of injuries being reported by the scribes. Therefore, the potential benefits of utilizing such a data surveillance strategy are significant.

## Endnotes

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<sup>2</sup>Stephen Scott contributed to this present work, but died on December 28, 2011 before its publication.

<sup>3</sup>While Beer's instrument was not published until 2004, it was available to the investigators in 2002 when the Old Order Injury Database was being developed.

<sup>4</sup> It should be noted that approximately 375 Old Order settlements existed when the surveillance system was developed.

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