

May 2017

# Effectiveness of Co-Payment Policies in the Correctional Healthcare Setting: A Review of Literature

Andrew L. Glick

*University of Connecticut, Andrew.glick@uconn.edu*

Megan Ehret

*meganehret@hotmail.com*

Valori Banfi

*valori.banfi@uconn.edu*

Deborah Shelton

*University of Connecticut, School of Nursing, deborah.shelton@uconn.edu*

Follow this and additional works at: <http://digitalcommons.uconn.edu/jepch>



Part of the [Health and Medical Administration Commons](#), and the [Public Health and Community Nursing Commons](#)

## Recommended Citation

Glick, Andrew L.; Ehret, Megan; Banfi, Valori; and Shelton, Deborah (2017) "Effectiveness of Co-Payment Policies in the Correctional Healthcare Setting: A Review of Literature," *Journal for Evidence-based Practice in Correctional Health*: Vol. 1 : Iss. 2 , Article 2.

Available at: <http://digitalcommons.uconn.edu/jepch/vol1/iss2/2>

---

# Effectiveness of Co-Payment Policies in the Correctional Healthcare Setting: A Review of Literature

## **Abstract**

**Objective:** To investigate the effects co-payment policies in the correctional health environment on access and utilization of healthcare services, cost-effectiveness of care, and health outcomes. **Methodology:** A literature search yielded 97 articles, 15 duplicates were eliminated. Thirty-three additional articles not in peer review journals were eliminated; 40 were eliminated because they did not focus on the research question and four were eliminated because they did not adequately present their data. A decision was made to retain the four quantitative studies in the review, and to utilize the single qualitative study to support conclusions and, or the discussion section. The Reporting Guidelines for Survey Research were utilized to assess the quality of the studies. **Results:** Four surveys demonstrated that co-pays could reduce health services utilization. The impact upon the quality of care to inmates is unknown at this time. **Conclusion:** Given the paucity of literature on this subject and the two decades that co-pays have been used in the prison/jail systems, rigorously designed studies are needed to examine the effect upon quality of care. Significant ethical issues for this highly vulnerable population are concerning given the undue burden of unmet health needs that must be balanced with the public need for fiscal accountability.

Effectiveness of Co-Payment Policies in the Correctional Healthcare Setting:  
A Review of Literature

Andrew L. Glick, BS

Megan J. Ehert, PharmD, MS, BCPP

Valori A. Banfi MSLS

Deborah A. Shelton, PhD, RN, NE-BC, CCHP, FAAN  
Professor, School of Nursing  
Director, Center for Correctional Health Networks

University of Connecticut  
231 Glenbrook Rd., Unit 4026  
Storrs, CT 06269

### Abstract

**Objective:** To investigate the effects co-payment policies in the correctional health environment on access and utilization of healthcare services, cost-effectiveness of care, and health outcomes.

**Methodology:** A literature search yielded 97 articles, 15 duplicates were eliminated. Thirty-three additional articles not in peer review journals were eliminated; 40 were eliminated because they did not focus on the research question and four were eliminated because they did not adequately present their data. A decision was made to retain the four quantitative studies in the review, and to utilize the single qualitative study to support conclusions and, or the discussion section. The Reporting Guidelines for Survey Research were utilized to assess the quality of the studies.

**Results:** Four surveys demonstrated that co-pays could reduce health services utilization. The impact upon the quality of care to inmates is unknown at this time.

**Conclusion:** Given the paucity of literature on this subject and the two decades that co-pays have been used in the prison/jail systems, rigorously designed studies are needed to examine the effect upon quality of care. Significant ethical issues for this highly vulnerable population are concerning given the undue burden of unmet health needs that must be balanced with the public need for fiscal accountability.

## INTRODUCTION

Inmates in prisons and jails are known to have a higher burden of chronic diseases such as mental illness, hypertension, diabetes, asthma, chronic liver disease, and HIV than the general population (1). However, access to medical care within detention centers and correctional institutions, particularly jails, remains poor (2, 3). Unfortunately, costs of providing care to inmates are high. Healthcare expenditures are believed to account for 9% - 30% of correctional costs (4). Escalating prison healthcare costs are attributed to the aging prisoner population, increased prevalence of disease and an increase in the medical Consumer Price Index (CPI) relative to all indexed items (5). To control these costs, many state Departments of Correction and the Federal Bureau of Prisons have looked for ways to cut costs of healthcare including contracting care to third party providers, utilization management, securing Medicaid accessibility for prisoners, delivering services through telemedicine, and charging prisoners co-payments or fees (4). Like efforts to control costs in the community sector, the efforts to slow the growth of healthcare costs for inmates has been through co-payments to reduce unnecessary or frivolous utilization of healthcare services.

Given the approximate twenty-year history of such practices, the literature demonstrating the effects of co-payment policies in the correctional environment are limited. This paper seeks to ask “are co-payment policies effective, or do they create large barriers to care?” This paper provides a systematic review of the literature that sought to find the effect of co-payment policies on access and utilization of healthcare services, cost-effectiveness of care, and health outcomes of prisoners.

## Background

Inmates in the U.S. have the right to receive healthcare as a result of a Supreme Court decision in *Estelle v Gamble* in 1976. Through this case, the Court established the “deliberate indifference” standard, in which a correctional institution must ensure prisoners’ “serious” healthcare needs are met (6). Additionally, some lower courts have ruled that this should be done regardless of the cost of care (7).

Co-payment, defined as a fee charged to patients every time (s)he uses a healthcare service (8), was first enacted in corrections in Nevada in 1981 (7). The majority of states gradually enacted co-payment policies in the early 1990s and these policies have been successfully upheld in various state and federal courts due to the latitude defined within the suggested guidelines (9, 10). Sixty to eighty percent of states have co-payment policies, and the Federal Bureau of Prisons has implemented such a system (11, 12).

Outside of the correctional system there are cost-sharing mechanisms, including co-payments and co-insurance used to distribute the cost between the patient and the insurer. These cost-sharing mechanisms are designed to reduce unnecessary utilization of healthcare resources which provide no benefit to the prisoners’ health (13). These mechanisms have been in place since the middle of the 20<sup>th</sup> century. It was not until the RAND Health Insurance Experiment (HIE) in the 1970s, that the effect these mechanisms had on overall cost of treatment and health outcomes was known. The results of the HIE indicate that cost-sharing does not adversely affect health for the average person; conversely, for those people who are both low-income and less-healthy, their health was negatively impacted by cost-sharing. The latter might be applicable to the US prison population (14). Although the RAND HIE is the most cited evidence for or against most types of cost-sharing mechanisms, it focuses on co-insurance, not co-payments.

There have been fewer studies since then with a focus on co-payments, specifically for healthcare providers. In the late 1980s, Cherkin *et al* (1989) showed that a \$5 co-payment in an HMO reduced outpatient physician utilization by roughly 5% to 10% (15). However, like many cost-sharing studies since HIE, this study did not measure health outcomes, nor did this study measure income effects (16).

This article provides insight into the effects of co-payment policies in the correctional health environment on inmate access and utilization of healthcare services, cost-effectiveness of care, and health outcomes of prisoners. The current literature has several primary studies on the subject, but this is the first systematic review of this literature with specific recommendations for future research into the utilization of this legislation.

## **METHODS**

The aim of this paper is to conduct a systematic review of the literature following the PRISMA guidelines to explore the evidence that would answer the research question sought “are co-payment policies effective, or do they create large barriers to care?”

### Search Strategy

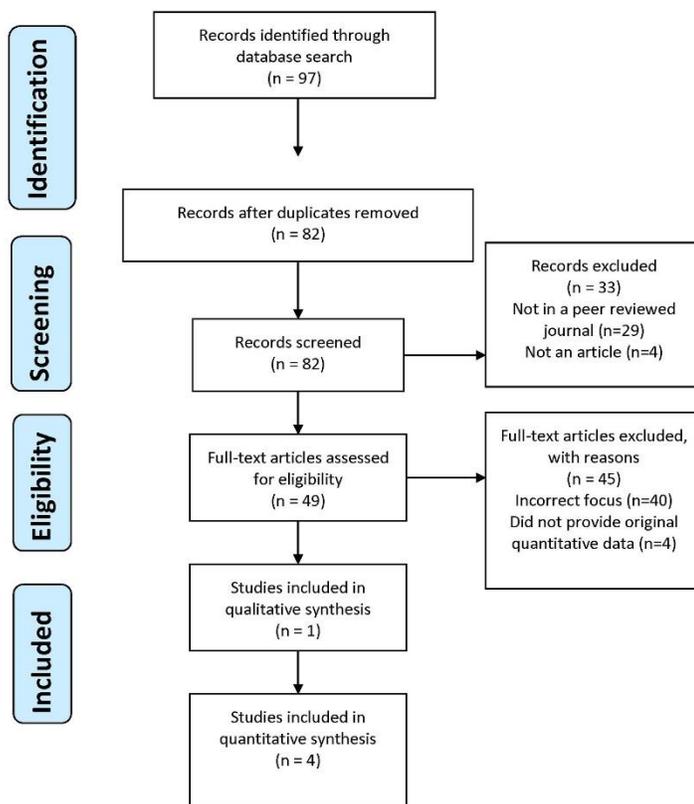
With the assistance of a research librarian (17), eight library databases and a journal were searched for articles published between 1964 to January 2014. The databases included: Academic Search Premier, CINAHL Plus with Full Text, PsycINFO, Social Work Abstracts, PubMed, Cochrane Library, Web of Science, SCOPUS, and the Journal of Correctional Health Care using combinations of the following search terms: (prisons or prisoners or prison or prisoner or public offender or public offenders or offender or offenders or incarcerated or incarceration or incarcerate or inmate or inmates or correctional health or correctional healthcare or correctional health care or correctional facilit\* or correctional or jail\* or halfway home\* or halfway house\* or community correction\*) AND (fee or fees or copay or copays or copayment or copayments or co-pay or co-pays or co-payment or co-payments or

copaying or co-paying or co-insurance or coinsurance or cost-share\* or cost-sharing or cost share\* or cost sharing or deductibl\* or health insurance or health-insurance).

### Inclusion/Exclusion Criteria

Ninety-seven total articles were found, and 15 duplicate articles were eliminated. Authors defined the following criteria for further review: the article was published in a peer-reviewed journal; included a discussion of co-payments in correctional facilities; and included original data collected with a focus on co-payment policies in correctional facilities. See Figure 1 for a flowchart of search and retrieval process.

Figure 1: PRISMA flowchart



### Quality Appraisal.

Articles were classified by methodological approach, yielding four quantitative and one qualitative study. A decision was made to retain the four quantitative survey studies in the review, and to utilize the qualitative study to support conclusions and, or the discussion section. Upon closer inspection, it was noted that these studies utilized survey methods. Articles retained in the review were audited independently by two team members utilizing the Reporting Guidelines for Survey Research (20) which yields a global scoring (STRONG: Confident in findings; additional study will replicate findings; MODERATE: Some confidence in findings, additional study may find additional information; WEAK: Low confidence, additional study required; INSUFFICIENT: Evidence does not permit conclusion) for the nine components (design, introduction, methods, sample selection, survey administration, analysis, results, discussion and ethical indicators). Six categories of information are examined (Title and Abstract; Introduction; Methods; Results; Discussions; Ethical Quality Indicators) with a total of 33 quality indicators. Each item is scored (met/not met) and tallied for the global scoring. The four articles were rated by two team members with differences discussed and final scoring determined.

## **RESULTS**

This review of literature assessed four quantitative studies to explore the effects of co-payment policies in the correctional health environment upon prisoner access and utilization of healthcare services, cost-effectiveness of care, and health outcomes of prisoners. Table 1 provides the summarized quality assessments of the four articles. Three studies were found to have a moderate level of quality (rating: 15-23) indicating that the reviewers had some confidence in findings, but indicates that additional study is required to clarify and confirm the findings. One study was determined to be weak in quality (rating: 8-14), and so it is interpreted with low confidence.

**Table 1. Summary of Quality Appraisal of Selected Studies**

<b>Criteria</b>	Gibson and Pierce (1996)	Harrison (1996)	Hyde and Brumfield (2003)	Makrides and Shulman (2002)
Design stated (1 item)	1	0	0	1
Introduction (2 items)	2	2	2	2
Methods: Research Tool (6 items)	4	0	6	2
Sample Selection (3 items)	3	1	2	1
Survey Administration (4 items)	4	0	4	3
Analysis (5 items)	0	0	1	1
Results (5 items)	4	4	3.5	4
Discussion (4 items)	0	1	2	1
Ethical Quality Indicators (3 items)	0	0	0	0
<b>Global Rating</b>	MODERATE-18	WEAK-8	MODERATE-20.5	MODERATE-15

**Note:** STRONG (rating: 24-33): Confident in findings; additional study will replicate findings.

MODERATE (rating: 15-23): Some confidence in findings, additional study may find additional information.

WEAK (rating: 8-14): Low confidence, additional study required.

INSUFFICIENT (rating: 7or below): Evidence does not permit conclusion.

Table 2 provides details of each study that was included and assessed for quality. The reader is cautioned to utilize the global score for the quality assessment when viewing these results. With an examination of the data in both Tables, a description of the prevalence and legal authority found for co-payment policies in the correctional environments is presented, followed by a review of the evidence found regarding the impact of co-pays upon access and utilization, cost effectiveness and health outcomes.

Table 2: Detailed Description of Included Articles

Note: DOC– Department of Corrections; BOP– Bureau of Prisons; NCCHC– National Commission on Correctional Health Care

Citation	Objectives/ Aims	Methods / Sample Size (n=)	Outcomes
Gipson & Pierce (1996)	To examine current trends in state DOC program design and implementation; recommend future systematic approaches to evaluate the impact of these programs on prisoners' use of health services and long-term cost effectiveness to the state DOCs	Telephone survey to state DOC and Federal Bureau of Prisons.  n= 52 of 52 state DOC, D.C., and Federal BOP solicited	<ul style="list-style-type: none"> <li>• 12 states have user fee programs</li> <li>• Average co-pay is \$3.20</li> <li>• All states exempt co-pays for the following reasons: prisoners in diagnostic centers who are just entering the system, pregnant prisoners, prisoners diagnosed with clinical mental illness, chronically ill prisoners, physically disabled prisoners, prisoners in long-term housing</li> <li>• Decrease in utilization varies from 10 to 60%</li> </ul>
Harrison (1996)	To discuss NCCHC Survey on charging prisoners for medical services and to provide further recommendations	Survey sent to jail jurisdictions accredited by NCCHC  n= 117 of 206 jurisdictions	<p>34% charge for service program.</p> <p>Of those:</p> <ul style="list-style-type: none"> <li>• 51% have specific legislative (county or state) authority for the program</li> <li>• 93% use prisoner trust or commissary fund</li> <li>• 88% debit prisoner's account whether there were funds or not</li> <li>• 67% deplete the account entirely if the charges exceeded the balance in the account</li> <li>• 20% recover funds after the prisoner left prison</li> <li>• Range of copayments: \$1-\$50 (the most common was \$2-\$10)</li> <li>• 28% charged for hospital services and emergency care</li> </ul>
Hyde & Brumfield (2003)	To determine the effect of co-payment on the use of different medical services	Utilization rate data was collected by health care administrator for each health service at the prisons 12 months before and 10 months after the \$2 co-payment policy was instituted. ANOVA statistical package was used. Pre-post design  n= approximately 700 prisoners in 2 prisons	<ul style="list-style-type: none"> <li>• In both prisons combined, only Dental Hygienist and Sick Care request decreased significantly</li> <li>• Women increased their MD and PA/NP visits while men decreased those visits</li> </ul>
Makrides & Shulman (2002)	To examine characteristics of dental care provided to state prisoners and to determine if dental care in correctional settings was driven by traditional indicators	Mailed survey to dental directors of each state plus Washington D.C. There was one question that asked about co-payments for dental services.  n= 47 of 52	<ul style="list-style-type: none"> <li>• 24 states (51%) required co-payments for dental services</li> <li>• 16 states (67%) initiated this system to discourage abuse of dental services</li> <li>• 22 (47%) states did not require co-payments</li> </ul>

### Description of co-payment policies

Co-payment policies vary across the twelve states (21), in the amount of the charge, types of services charged, categories of prisoners exempted from charges, and the manner in which revenues are collected. Harrison (1996) reports 40% had co-payment policies in place; and of those, 51% had county or state legislative authority to do so (22).

The average co-payment charge in prisons was \$3.20 (21) with a range from \$3 to \$10 (22). Harrison (1996) reports that most jails collect the co-payment from commissary accounts; and, in some cases even attempt to recover funds owed once the inmate has been released (22). All states exempt prisoners who are pregnant, chronically ill, physically disabled, and living in long-term housing; as well as exempt the following services: initial intake assessment; public health measures; provider initiated medical care (21). For the 28% of jails that do require co-payments for emergencies, they also required co-payments for hospital care (22). Co-payments for dental services are reported for twenty-four state Department of Corrections (23).

#### The effect of co-payment policies on access and utilization of healthcare services

In the survey conducted by Gipson & Pierce (1996), utilization reduction rates varied from 10% to 60% for the six states (Arizona, Florida, Kansas, Maryland, Nevada, and Oklahoma) that reported utilization change data (21). Authors note that these results cannot be compared between state and services because of the lack of uniformity in reporting of statistics (24). Access is fairly uniform upon intakes, but referral information is limited, and the length of time to service is unavailable, but a known problem (25). In a study looking at utilization rates before and after implementation of a co-payment policy, Hyde & Brumfield (2003) report decreased utilization of dental hygienists ( $F=4.97, p=0.000$ ) and sick care visits ( $F=35.55, p=0.000$ ) after the co-payment policies were implemented (26). However, the authors note limitations of the study include violations of research assumptions (homoscedasticity and normality) in the ANOVA analyses; but Zar (1984) states that ANOVA is robust to these violations (27). Authors also report that significant gender differences were found, with women having higher utilization rates, but no statistic was reported. However, a reduction of service utilization by 36% for male prisoners and 38% for female prisoners was reported.

### Financial implications of co-payment policies

Revenue collected from prisoner co-payment charges was examined for twelve states that provided data on revenue (21). The costs associated with enforcing a co-payment policy were not recovered in revenue collections, in part due to collection rates between 52% - 81%. Although revenues did not cover the costs associated with utilization review and pre-authorization activities, cost savings are noted with service utilization that decreased 18-60 percent.

### Effect of co-payments upon health outcomes

None of the surveys found provided data linking co-pay policies with prisoner health outcomes. Inability to compare data across states limits the ability to note regional or national trends at this time. There is a lack of uniformity in the measures that are used including: yearly visit averages, costs per visit, or epidemiological rates (21). Noting the small number of studies available to examine, the lack of recent data on this subject, and lack of outcome data, it may be that efficacy of co-payments as measured by outcomes is not supported at this time. More rigorously designed studies are needed to demonstrate true effects.

## **DISCUSSION**

The articles in the systematic review were limited (n=4) and did not fully substantiate the effectiveness of co-payment policies. NCCHC (2012) aptly notes the benefits and limitations of co-payments and their effect upon correctional healthcare, and agree that adequate research has not been conducted to support the true benefits of these policies (9). Currently, the decision to utilize co-payment policies in correctional health care systems appears to be driven by a need to reduce cost or frivolous service utilization. Indeed, healthcare utilization rates do appear to have decreased with the implementation of co-payment policies, however, access to care and appropriateness of the decrease in utilization rates is poorly explored. As seen in our description of how these policies are created, medically necessary care is assured, but pressures to manage care and its associated costs are evidenced in the correctional healthcare literature (28). There is minimal discussion of the quality and outcomes

associated with these strategies for managing costs. Further, how do these policies impact different sub-populations of inmates (e.g. gender)?

As an example, Angelotti & Wycoff (2010) suggest that preventive services, recognized for their ability to reduce chronic illness and associated costs, have remained exempt from co-payment policies (5). Yet, expanding the scope of services to emphasize preventive care may increase the number of clinic visits and potentially increase the costs associated with shifting patterns of care. Persons who come into prisons and jails are in poor health. Change in individual behavior with a shift to preventive health care and wellness would need to occur across the healthcare system, both inside and outside the correctional system to impact costs.

#### Limitations.

Given the limited number of published articles on the topic of co-payments in correctional health care systems, the limitations noted with this review include: an inability to compare results across studies due to: differences in classification of services and co-pay policies or programs; inconsistent, or unreported definitions; varied data collection instruments; lack of rigorous designs utilized; and, different types of utilization data measured (e.g. individual change versus system-level changes). Further, by not including “grey literature” (29) or additional databases, access to some additional documents on the topic may have reduced.

#### Conclusion

This review yielded little published evidence to justify the practice of co-payments policies in correctional institutions. Effects of co-payments upon health outcomes are absent and cost-effectiveness is based upon sparse literature noting estimated utilization reduction rates, and the assumption that these were attributed to co-payments alone. More research is needed, particularly in examination of quality of care, costs and patient outcomes.

We recommend an examination of how stakeholders, including consumers, define “frivolous care”. Armed with this information, systems issues may be addressed and like other consumer groups, incarcerated persons can be assisted to utilize services appropriately. It may be suitable to conduct a time

series study to examine utilization before and after policy implementation; or, a comparison of co-payment with alternate approaches to reduce frivolous utilization while maintaining quality care. Future research should collaborate across systems to account for factors unique at the organization and facility level (e.g. security level, population size, jail/prison; health care management structure and co-payment policy details) and population demographic, social and criminal justice indicators (e.g. age, gender, race/ethnicity, socio-economic status, health status, number of incarcerations). Lastly, a cost-benefit analysis is suggested to assure that use of co-payment policies provide economic value (i.e. cost to administer is equivalent to revenue; or value added through improved health outcomes).

It is a challenging goal to balance costs with individual rights to health care and the competing rights of the needs of all public consumers. Much effort is applied to managing costs in the field of correctional health, but it is challenging to know just how well correctional health care systems are doing when dissemination is limited as noted by this review. Our last appeal is for correctional health care system leaders to advance the science and practice through dissemination and partnership.

## REFERENCES

1. Wilper, AP., Woolhandler, S., Boyd, JW, Lasser, KE., McCormick, D., Bor, DH. et al. The health and health care of US Prisoners: Results of a nationwide survey. *American Journal of Public Health*. 2009; 99:4: 666–672. doi: 10.2105/AJPH.2008.144279.
2. Human Rights Watch. Detained and dismissed. [cited February 18, 2015] 2009. Available from: <http://www.hrw.org/en/reports/2009/03/16/detained-and-dismissed>.
3. Beck, AJ. The importance of successful reentry to jail population growth. [cited February 18, 2015] 2006. Available from: <http://www.urban.org/projects/reentry-roundtable/upload/beck.ppt>.
4. Schaenman, P., Davies, E., Jordan, R., Chakraborty, R. Opportunities for cost savings in corrections without sacrificing service quality: Inmate health care; 2013[cited April 13, 2014] Washington DC: Urban Institute. Available from <http://www.urban.org/publications/412754.html>.
5. Angelotti, S., Wycoff, S. Michigan's prison health care: Costs in context. 2010 [cited February 18, 2015]. Lansing, Michigan: Senate Fiscal Agency. Available from: <http://www.senate.michigan.gov/sfa/publications/issues/prisonhealthcarecosts/prisonhealthcarecosts.pdf>.
6. Estelle v. Gamble, 429 U.S. 97, 97 S.Ct. 285, 1976 [cited April 4, 2014]. Available from: <http://www.supreme.justia.com/cases/federal/us/429/97/case.html>.
7. Wallace, G. N. The real lethal punishment: The inadequacy of prison health care and how it can be fixed. *Faulkner Law Review*, 2012 [cited April 2, 2014]; 4(1), 265-297. Available from: [http://works.bepress.com/g\\_wallace/1](http://works.bepress.com/g_wallace/1).
8. Santerre, R., Neun, S. Health economics: Theory, insights, and industry studies. 5th ed. USA: South-Western Cengage Learning. 2010.
9. National Commission on Correctional Health Care. Position statement: Charging inmates a fee for health care services; [cited February 19, 2015] 2012. Available from: <http://www.ncchc.org/charging-inmates-a-fee-for-health-care-services>.
10. Rold, W. J. Charging inmates for medical care: A legal, practical, and ethical critique. *Journal of Correctional Health Care*, 1996; 3(2), 129-143. doi:10.1177/107834589600300203.
11. Awofeso, N. (2005). Making prison health care more efficient. *British Medical Journal*, 331(7511), 248. doi:10.1136/bmj.331.7516.575-a.
12. Lamb-Mechanic, D., & Nelson, J. (2000). Prison health care survey: An analysis of factors influencing per capita costs. (No. 015999). Washington DC: National Institute of Corrections.
13. Shi, L., & Singh, D. (2012). *Delivering health care in America: A systems approach* (5th ed.). USA: Jones & Bartlett Learning, LLC.
14. Veysey, B. (2011). The intersection of public health and public safety in U.S. jails: Implications and opportunities of federal health care reform (Issue Paper). Community Oriented Correctional Health Services. New Jersey: Rutgers University. Retrieved April 12, 2014 from: <http://www.cochs.org/files/Rutgers%20Final.pdf>.
15. Cherkin, DC, Grothaus, L & Wagner, EH. (1989). The effect of office visit copayment on utilization in a health maintenance organization. *Med Care*;27(7) 669–679. PMID:2586186.
16. Gruber, J. (2006). The role of consumer copayments for health care: Lessons from the RAND health insurance experiment and beyond. (No. 7566). Menlo Park, CA: The Henry J. Kaiser Family Foundation.
17. Moher, D, Liberati, A, Tetzlaff, J & Altman DG (2009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS Med*.6(7):e1000097. doi: 10.1371/journal.pmed.1000097. Epub 2009 Jul 21.
18. Effective Public Health Practice Project. (2009). Quality assessment tool for quantitative studies. Retrieved 3/14, 2014 from: <http://www.ehphp.ca/tools.html>.

19. Lohr, K.N. (2012). *Grading strength of evidence*. AHRQ Effectiveness Healthcare Program: Training Modules for Systematic Reviews Methods Guide. Retrieved April 13, 2014 from: <http://effectivenehealthcare.ahrq.gov/slides>.
20. Bennett, C., Khangura, S., Brehaut, J.C., Graham, I.D., Moher, D., Potter, P.K. & Grimshaw, J.M. (2011). Reporting guidelines for survey research: An analysis of published guidance and reporting practices. *PLoS Med* 8:e1001069. Doi 10.1371/journal.pmed.1001069.
21. Gipson, F. T., & Pierce, E. A. (1996). Current trends in state inmate user fee programs for health services. *Journal of Correctional Health Care*, 3(2), 159-178. Doi:10.1177/107834589600300205.
22. Harrison, B. P. (1996). In the matter of correctional facilities charging prisoners for health services. *Journal of Correctional Health Care*, 3(2), 109-127. Doi:10.1177/107834589600300202 .
23. Makrides, N. S., & Shulman, J. D. (2002). Dental health care of prison populations. *Journal of Correctional Health Care*, 9(3), 291-306. doi:10.1177/107834580200900306.
24. Ahalt, C., Trestman, R. L. Josiah D. Rich, JD., Greifinger, RB. & Williams, BA. (2013). Paying the price: The pressing need for quality, cost, and outcomes data to improve correctional health care for older prisoners. *Journal of American Geriatric Society*, 61(11):2013–2019.
25. Clarke, JG., Hebert, MR., Rosengard, C., Rose, JS., DaSilva, KM. & Stein, MD. (2006). Reproductive health care and family planning needs among incarcerated women. *American Journal of Public Health*; 96(5): 834-839. Doi: 10.2105/AJPH.2004.060236.
26. Hyde, R., & Brumfield, B. (2003). Effect of co-payment on the use of medical services by male and female prisoners. *Journal of Correctional Health Care*, 9(4), 371-380. Doi:10.1177/107834580300900402
27. Zar, J.H. (1984). *Biostatistical analysis* (2nd ed.). Englewood Cliffs, NJ: Prentice-Hall.
28. Kinsella, C. (2004). *Corrections Health Care Costs: Trends Alert*. Lexington, KY: Council of State Governments. Retrieved February 19, 2015 from: <http://www.prisonpolicy.org/scans/csg/Corrections+Health+Care+Costs+1-21-04.pdf>.
29. Saleh, AA, Ratajeski, MA. & Bertolet, M. (2014). Grey literature searching for health sciences systematic reviews: A prospective study of time spent and resources utilized. *Evidence Based Library and Information Practice*; 9.3: 28-50. (<http://creativecommons.org/licenses/by-nc-sa/4.0/>).