〈教育報告〉

平成17年度専門課程Ⅰ
保健福祉行政管理分野分割後期（応用）履修方式B

岐阜県における腸管出血性大腸菌感染症の地域診断

出口一樹

A Community Diagnosis on Enterohemorrhagic *Escherichia Coli* Infection in Gifu Prefecture

Kazuki Deguchi

Abstract

Purpose :This study was aimed to carry out a community diagnosis of enterohemorrhagic *Escherichia coli*（*E. coli*）infection in Gifu Prefecture, Japan. Methods: An author investigated patients who were required by law to report to Gifu Prefecture from 1997 to 2003 that they had developed enterohemorrhagic *E. coli* infection. The crude as well as the directly-adjusted incidence rates were calculated.　The standardized incidental rate（SIR）, the empirical Bayes estimation for the standardized incidence rate（EBSIR）, and Tango's indices of clustering were analyzed using Disease Mapping System. Flexible scan and Kulldorff's circular scan were Performed of analyze the elustering with FleXScan. Results: The number of patients reported to Gifu Prefecture was 275, including 121 who lived in the Hida area. The incidence rate in that area（＝10.2 per population of 100,000）, the SIR（＝569.1）and EBSIR（＝557.4）were significantly high（p＜0.01）. Clustering was noted in Takayama City of the Hida area by Tango's method. The Flexible scan and Kulldorff's circular scan revealed that clustering was noted in Takayama and the surrounding towns and villages. Conclusion: This study suggests the clustering of E.coli infectins in Takayama City of the Hida area in the prefecture, where a large amount of livestock is raised, and further investigation on the relationship between this infection and the livestock-raising environment.

***Keywords* :** enterohemorrhagic *Escherichia coli* infection, O157, community diagnosis, Gifu Prefecture, clustering

Thesis Advisor: Yuriko Doi

Ⅰ. 目的

　岐阜県における腸管出血性大腸菌感染症の発生状況を解析し，地域集積性などの地域特性の把握（地域診断）を行った．

Ⅱ. 方法

　1. 資料：日本及び岐阜県の公表された衛生統計（平成9-15年）を使用した．2. 項目：本症患者の届出数（性・年齢・発生場所・菌の血清型・感染経路）とした．3. 解析方法：指標として，罹患率（人口10万対），相対危険度および年齢調整罹患率 directly-adjusted incident rate（DAR）を算出した．年齢調整（間接法）のため，Disease mapping

指導教官：　土井由利子（疫学部）

System（DMS）を使用して，二次医療圏毎の標準化罹患比 standardized incidental rate（SIR）と経験的ベイズ推定値 empirical Bayes estimation for standardized incidental rate（EBSIR）を算出し，疾病地図を作製した[1]．市町村毎には DMS を用いて SIR と EBSIR を計算し，さらに Tango の集積性，FleXScan を用いて Flexible scan と Kulldorff's circular scan の地域集積性の検討を行った[2]．

Ⅲ. 結果

1. 患者数（届出数）：7年間に日本においては21,394例，岐阜県では275例，飛騨地域は121例であり，岐阜県の44％を占めていた．（表1）．

2. 性と年齢：男142例（51.6％）女133（48.4％）であり，男女差は認められなかった．全患者の平均年齢は18.0歳であり，19歳以下の未成年者が185例67.3％を占めて

表1．患者数の推移（平成9年～15年）

医療圏	9年	10年	11年	12年	13年	14年	15年	合計
岐阜地域	9	14	9	14	8	7	11	72
西濃地域	7	8	12	3	6	3	4	43
中濃地域	2	0	2	5	3	5	4	21
東濃地域	2	0	5	3	3	4	1	18
飛騨地域	12	15	11	14	8	1	60	121
岐阜県	32	37	39	39	28	20	80	275
日本	1,941	2,077	3,117	3,642	4,435	3,183	2,999	21,394

いた．

3．発生場所：家庭内を中心とした場合（家庭内発症例）と集団施設に発生した場合（集団施設例）があり，家庭内発生例は217例（78.9％），集団施設例は58例（21.1％）であった．

4．感染経路：感染経路が推定できたのは施設内における二次感染とされた55例であり，他の220例は不明であった．

5．罹患率：日本における罹患率（人口10万対）は2.4，岐阜県は1.9であった．飛騨地域は10.2と有意に高く，他の4地域は有意に低かった（p＜0.01）．

6．DAR・SIR・EBSIR：飛騨地域は有意に高く（p＜0.01），西濃地域には有意差は認められなかった．それ以外の3地域は有意に低かった（p＜0.01）．

7．DMSによるSIR，EBSIRと疾病地図：飛騨地域のSIRとEBSIRは有意に高かった（図1，図2）．
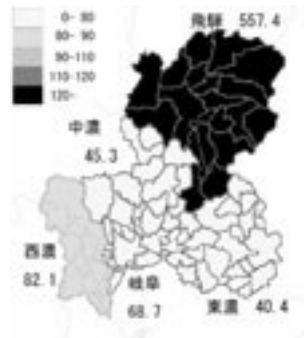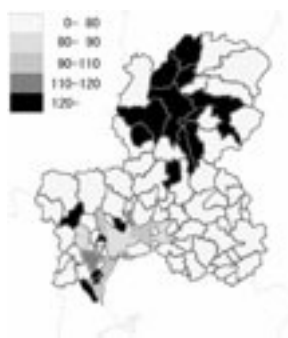　　市町村のSIRとEBSIRが120以上であったのは，飛騨地
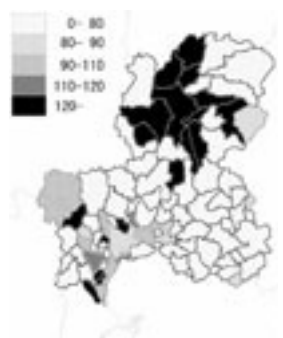

図1．二次医療圏のSIR

図2．二次医療圏のEBSIR

図3．市町村のSIR

図4．市町村のEBSIR

域では10市町村，岐阜地域では2町，西濃地域では4市町村，中濃地域では3町村であり，両者ともに同じ結果であった．（図3，図4）．

8．Tangoの方法では，高山市に有意な集積が認められた（p＝0.001）（図5）．

図5．Tangoの方法

Flexible scanでは高山市と周囲の8市町村に有意な集積が認められ（p＝0.001），Kulldorff's circular scanでは高山市と周囲の12市町村に有意な集積が認められた（p＝0.001）（図6，図7）．

図6．Flexible scan　　　　図7．Kulldorff's circular scan

Ⅳ．考察

　岐阜県全体の罹患率は低かったが，飛騨地域の罹患率・SIR・EBSIRは高かった．その中の高山市とその周辺の町村に地域集積性が認められた．原因としては，集団発生例は人から人への二次感染であったが，家庭内発生例はほとんどが不明であった．飛騨地域は牛の飼育が盛んであり，地域集積生の可能性として牛の飼育環境と本症との関連を調査する必要が示唆された．

　本症に関する資料が散在していたため収集に多くの労力と時間を要し困難を極めた．地域診断を行うためには，正確な衛生統計とその入手が容易なシステムの構築が重要である．

Ⅴ．まとめ

　岐阜県において飛騨地域の高山市と周辺町村に集積性が認められた．今後は飛騨地域の牛の飼育環境調査が必要で

あると示唆された．地域診断のために衛生統計の管理体制
の構築が重要である．

文献

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〈教育報告〉

平成17年度専門課程Ⅰ
保健福祉行政管理分野分割後期（応用）履修方式B

温泉マイスター受講者の温泉の意識調査

池田凡美

Attitudes of Participants in "Spa Master Course" toward Hot Springs

Hiromi IKEDA

抄録

目的　温泉に興味があると思われる集団に対して，温泉に対する意識調査を行い，住民の温泉に対する理解を明らかにし，今後の温泉行政の方向性を探る．

方法　2005年10月4〜5日に，賀茂保健所が開催した「温泉マイスター」受講者87名全員を対象に，無記名自記式の温泉に対するアンケート調査を行い，観光業者と一般住民の意識の違いも検証した．

結果　78名から回答があった（回収率89.7％）．職業では，観光業者が35.9％を占め，温泉の利用目的は疲労回復が74.4％，気分転換は69.2％で，健康増進24.4％，病気療養3.8％であった．温泉利用時のこだわりも，浴場の雰囲気・情緒85.9％で，衛生状態42.3％，効能38.5％であった．また，温泉に興味のある集団であるにもかかわらず，「温泉の知識を良く知る」人は，観光業者15.4％，住民8.2％と差はあるが，約10％程度にとどまっている．

結論　本調査では，温泉を健康増進や疾病予防に利用するという意識は薄く，リフレッシュ目的に利用し，業者と住民であまり差はない．進む高齢化社会で，行政としては，温泉の健康増進政策への利用や衛生管理などを含めて，温泉の適正な利用を支援する必要がある．

キーワード：温泉，健康作り，衛生管理，温泉行政

Abstract

　The purpose of this study is to conduct a survey of people who are interested in hot springs, to examine their attitudes towards it, and to discuss how the public health center should be involved in the policy on hot springs. Subjects of the survey were 87 participants in "spa master course" held by Kamo public health center on 4th and 5th October 2005. A questionnaire was distributed to each subject at he beginning of the lecture, and 78 subjects returned it, for a response rate of 89.7%. 74.4% of the respondents made use of hot springs for the recovery from the fatigue, 69.2% did for the refreshment, and 24.4% did for health promotion. 85.9% of the respondents cared about an atmosphere in the spa, 42.3% did about the sanitary conditions of the bathroom, and 38.5% did about he efficacy of hot springs. Few people used hot springs for the purpose of health promotion or disease prevention. These results suggest that the public health centers need to make the most of hot springs for the health promotion and to inspect the sanitary conditions of the hotels rigorously.

Keywords : hot springs, health promotion, sanitation, policy on hot springs

Thesis advisor: Shinji TAKEMURA

指導教官：　武村真治（公衆衛生政策部）

Ⅰ．はじめに

　一般国民の温泉に対する期待や意識等については，調査がなされていないため，今回は温泉に興味がある一般者を対象に調査を行った．

Ⅱ．方法

(1)　調査について

　賀茂保健所主催で，管内6市町の協力を得ながら，2005年10月に「温泉マイスター養成講座（入門講座）を開催した．

(2)　調査方法

　参加者全員を対象に，アンケート用紙を用いた無記名自記式により，「温泉に対する意識調査」を行った．調査期間は，マイスター期間中の2005年10月4日～5日の2日間である．

(3)　調査項目

　①　基本属性　　②　温泉に関する調査

　③　健康に関する調査

　④　施設の衛生管理や分煙状況，従業員の健康管理状況等の調査

　なお，調査項目①～③は参加者全員の共通項目とし，④は，観光業者に対してのみ調査を行った．

(4)　分析方法

　①単純集計　　②クロス集計

　一般住民と観光業者の意識の違いを検証した．

Ⅲ．結果

(1)　回答者数・回収率

　参加者は，総数87名，回答者78名で，回収率は89.7％である．

(2)　回答者年齢構成

　全体では50歳代が最も多く25人（32.1％）であった．

(3)　職業

　観光業者が28人（35.9％）を占めた．

(4)　一年間の温泉入浴回数

　年10回以上温泉入浴している人は，全体では62人（79.5％）となっている．

(5)　温泉利用の主たる目的

　疲労回復58人（74.4％），気分転換54人（69.2％），観光23人（29.5％），健康増進19人（24.4％），病気療養3人（3.8％）をあげている．

　これを観光業者と一般住民で比較すると，大きな差はみられない．

(6)　温泉へのこだわり

　浴場の雰囲気・情緒67人（85.9％），衛生状態33人（42.3％），効能30人（38.5％），泉質28人（35.9％）である．かけ流しや循環式の形態へのこだわりは，19人（24.4％）である．

(7)　入浴前後での血圧測定

　55人（70.5％）の人が血圧測定をしていない．

(8)　温泉の知識

　「良く知っている」と答えた人はわずか8人（10.7％）で，「普通に知っている」は36人（48％），「知らない」と答えた人は31人（41.3％）である．

(9)　温泉入浴後の効果をどう感じるか

　疲労回復58人（74.4％），気分転換53人（67.9％），血行改善52人（66.7％）である．

(10)　施設での分煙対策

　「全館分煙」は9.0％，「一部分煙」が45.5％，「今後分煙予定」が24.2％，「分煙の予定なし」が21.2％である．

(11)　旅館従業員の健康診断

　75％が実施していて，25％が未実施である．

(12)　宿帳の整備

　100％整備されている．

Ⅳ．考察

　温泉の医学的作用としては，

(1)　物理作用…温熱，水圧，浮力，粘性．

(2)　化学作用…血管拡張作用と皮膚に対する作用．

(3)　総合的生体調整作用…温泉を含めた自然環境などの総合的な作用．

などが上げられ，温泉は万病に効く，とまではいかないまでも，一定の効果は期待できる．

　近年は，厚生科学研究などで，温泉を利用した健康増進を通じて，住民の生活の質の向上などに寄与するとの調査結果が報告されている．しかし，今回の調査から，温泉の利用目的は，病気療養目的や健康増進目的は少なく，疲労回復や気分転換などのリフレッシュ目的が多かった．

　今後も進む高齢化社会に向けて，健康増進・介護予防の観点から，温泉の積極的利用を推進する必要性があるのではないだろうか．

　温泉の知識は「よく知っている」と答えた人が，約10％程度で，観光業者の方が知識はあるものの，温泉の知識を熟知しているとは言い難い結果であり，観光業者は温泉のエージング（老化）など温泉の化学的な性質や泉質などによる効能などを，もう少し詳しく知ることにより，正確な温泉の利用方法を，観光客や住民に提供するとともに，行政もこの点を支援する必要がある．

　レジオネラ症のことは，マスコミで報道されているが，衛生状態への関心は約40％で比較的低く，浴場の雰囲気・情緒は約90％と，衛生状態よりイメージが先行している．

　ほとんどの人が入浴前後で血圧測定をしたことはないが，入浴時の死亡は，高齢者の主要な死亡原因である．入浴時の注意点を，行政も旅館等で掲示する必要性を説く必要がある．

　「掛け流し神話」が流行しているようだが，本調査で，住民が必ずしも掛け流しにこだわっていないということは，温泉の保護と適正な利用についての更なる取り組みが課題となっている中で，温泉行政にひとつの示唆を与えるものである．

　また管内1550施設の立ち入り検査の結果，非循環式浴槽からも，レジオネラ菌は検出されており，清掃や消毒などの管理が大切なことは明白である．行政としては，業者へのレジオネラ対策を含めた管理体制の強化を訴えていく必

要がある.

　また，禁煙対策は，本調査では「今後分煙対策を取り組む予定のない施設」が約20％もあり，行政は引き続き指導していかなくてはならない.

　旅館従業員の健康診断については，旅館の25％が健康診断未実施なのは，結核などの感染症などの観点からも，年に一度の健康診断・健康教育を機会あるごとに訴える必要性がある.

　今後ますます健康への関心が増すと予想される中で，旅館は施設・従業員も含めた衛生管理や，健康への意識を高め，住民ニーズに応える必要があり，行政もそれを支援していくことが，公衆衛生行政の発展につながる.

　本研究の問題点としては，対象者の選定が挙げられる.

　今回の調査対象は，温泉に興味を持っていると考えられる人が対象であり，温泉に興味のない一般利用者では，温泉に対する知識はこの調査結果以上に低く，温泉を単なる観光・娯楽の対象として，"癒しのイメージ"のみが先行していると危惧される.

V．まとめ

　高齢化社会に拍車がかかり，国民の健康意識が高まる中で，今後温泉は重要な健康増進・疾病予防政策資源の一つとなり，行政政策に取り込める可能性があるとすれば，この研究は，今後の温泉行政に一つの方向性を示す興味深い研究となってくる.

〈教育報告〉

平成17年度専門課程 I
保健福祉行政管理分野分割後期（応用）履修方式 B

郡山市の母親教室の評価 － 妊婦のメンタルヘルスの観点から －

阿部孝一

Evaluation of Maternity Class in Koriyama City
Focused on the Mental Health of Pregnant Women

Koichi ABE

キーワード：母親教室，妊婦，メンタルヘルス，母子保健，事業評価

Abstract

Objective: The effect of the maternity class in Koriyama City is evaluated from the viewpoint of mental health of women with the first time of pregnancy.

Methods: 170 of women of the first time pregnancy who have participated in the maternity class were analyzed. We investigated by the self-administered questionnaire including the Edinburgh postnatal depression scale （EPDS）, the score for the attachment degrees to the fetuses, the score for the attachment degrees to the husbands and the items for the evaluation of the maternity class. We defined to depressed mood those who scored EPDS in nine points or more.

Results: The allover EPDS score was 6.40 ± 3.24. Thirty-eight （22.4%） women were affected by depressed mood . The relating items with depressed mood was husbands' time of coming home, the fathers' participation to the classes and mothers' smoking and the attachment degrees to the fetuses. The EPDS score when the class ended became significantly improved to 5.69 ± 3.24 （$p < 0.0001$）.

Conclusion: It was confirmed that the maternity class was profitable for the pregnant women. More specialists would be needed for better assessments and supports for the stronger attachment of the mothers to the fetuses and for the better management of the maternity classes, in which mothers can become more friendly with each other.

Keywords : maternity class, pregnant woman, mental health, maternal and child health, evaluation

Thesis Advisor: Noriko KATO

I　はじめに

妊娠期の女性は目前の分娩に対する不安や，胎児の健康の不安などを抱え心理的負担は大きい．しかし，妊娠は女性の精神障害の発生を阻害する因子であると考えられ，妊婦のメンタルヘルスの関心は高くなかった．

近年，産褥期よりも妊娠期に不安やうつ傾向のある女性が多いことや産後うつ病は妊娠期に発病する例があることなどが報告されている．妊娠期の不安，うつ傾向の頻度は産後うつ病の頻度13.9％に較べれば少ないが，安全な出産を支援するためにそして産後うつ病を予防するために妊娠期の女性のメンタルヘルスの対応は重要である．

そこで本研究は，初めて妊娠した女性のメンタルヘルスに焦点を当て，郡山市の母親教室（以下教室）を評価し，現在実施している教室の今後の課題とより効果的なあり方について検討することを目的とした．

II　研究方法

1．対象

郡山市保健所で開催した母親教室に参加した妊娠16週以降の初回妊娠の女性229人を調査対象とした．回答に不備のあった者を除いた170人（有効回答率74.2％）を分析対象者

指導教官：　加藤則子（研修企画部）

とした．調査期間は2003年6月から2004年4月の1年間である．

2．調査方法

対象者の属性の他，日本版エジンバラ産後うつ病質問票（以下EPDS），夫への愛着度，胎児への愛着度，教室の評価からなる自記式質問紙により対象者から情報収集した．EPDS得点9点以上の対象者をうつ群と定義して分析した．

3．分析

対象者の教室受講前のEPDS得点，うつ群の割合およびうつ群と正常群の2群と属性および夫への愛着度，胎児への愛着度との関連を比較し，有意であった項目についてロジスティック回帰分析を用いて分析した．さらに，教室受講前のEPDS得点と教室受講後のEPDS得点の変化を対応のあるt検定により分析し，EPDS得点が有意に改善した場合，その改善因子を検討した．

Ⅲ　結果

教室前EPDS平均得点は6.40±3.24，うつ群は38人で全体の22.4％を占めた．2群と有意に関連のあった属性は「喫煙歴」と「夫の帰宅時間」であった．2群と夫への愛着度，胎児への愛着度との間にも有意な関連があった．多重ロジスティック回帰分析の結果，教室前うつ群に対するオッズ比は，夫の帰宅時間が不規則な群では5.16，対象者の喫煙歴がある群では3.29，夫の教室受講がない群では6.63，胎児へ愛着度が8点以上の群では9.83であり統計上有意であった．

教室前平均EPDS得点は6.40±3.24，教室後平均得点は5.69±3.31，うつ項目の平均得点は教室前0.55±1.04，教室後0.45±1.00，不安項目の平均得点は教室前5.17±1.99，教室後4.63±1.95であった．EPDS得点と不安項目得点は教室の前後で有意に改善した．教室評価のうち「妊婦の友だちができた」の評価は60％台と低かったが，他の項目の評価は80％をこえた．EPDS得点の改善と有意の相関を示す項目は「妊婦の友だちができた」であった．

Ⅳ　考察

1．妊婦のうつの状況

うつの妊婦の割合が22.4％と高い結果は，メンタルヘルスに重点を置く母親教室の運営が早急に必要であることを示している．夫の帰宅時間，夫も一緒に教室受講，対象者の喫煙歴が対象者のうつと関連があった．いずれも，妊婦の不安と関連する項目，夫の行動変容，喫煙をうつの危険因子として妊娠早期に対応する必要がある．また，赤ちゃんへの愛着の強さはうつ，不安の軽減につながることが示唆された．

2．母親教室の効果

EPDS得点は教室前後で有意に改善され，教室が妊婦のメンタルヘルスに効果があり，特に不安項目の改善に寄与していることを示す結果であった．しかし，教室の評価で仲間づくりができない妊婦が思った以上存在していることは今後の教室のあり方を問う結果であると思われる．

3．今後の教室のあり方

本研究の結果，母親教室は妊婦に対して効果のあることが確認された．今後は①うつをスクリーニングした際，胎児への愛着形成をはかるため，妊婦が妊娠期に胎児の成長を肯定的にとらえているかをアセスメントし妊婦の意識，環境に考慮した支援，援助をするカウンセラーなどの専門職員の配置または職員の養成，②参加者の評価が低く，EPDS得点の改善と相関し，健やか親子21においても提唱されている仲間づくりを重視した教室のあり方，③夫も一緒に受講できる休日開講などの環境づくりなどが教室の課題として検討されなくてはならない．

教室以外の取り組みとして，うつの危険因子を早期に発見して対応していくために，母子健康手帳交付時などに危険因子を発見して母親教室や専門のカウンセリング，医療に結びつける体制や妊婦健診時にうつをスクリーニングし，支援に結びつける体制の確立などが考えられる．

Ⅴ　結論

母親教室は妊婦にとって有益であることが確認された．しかし，カウンセラーなどの専門家の配置やメンタルヘルスに対処できる職員を養成することによる胎児への愛着形成のためのアセスメントと支援，そして仲間づくりを重視した教室を運営することが今後の課題であった．

〈教育報告〉

平成17年度専門課程Ⅱ
地域保健福祉分野

千葉県鴨川市住民における腹囲とメタボリックシンドロームリスク要因及び生活習慣との関連

境道子

Waist Circumference and Life Style among 10,130 Middle and Elder Aged People in Kamogawa-city, Chiba

Michiko SAKAI

Abstract

Objective: To study waist-circumference, as a indicator of abdominal lipid disposition, and the life-style related diseases and life-style among 10,130 middle and elder aged people in Kamogawa-city, Chiba.

Results: There was significant relation between life-style in eating habit and waist circumference; preference for fatty meat, and speed of eating. Regarding to diagnosis criteria for metabolic syndrome in Japan, waist size is 85cm for a man, 90cm for a woman, which did not show threshold effect for burden of risk factors. Prevalence of life-style related disease increased according to increase of waist size by degrees.

Conclusion: Relationship between waist circumference and life-style related diseases were revealed Preventive approach to waist size for life-style related diseases is considered to be effective among middle and elder aged population.

Keywords : Metabolic syndrome, waist circumference, life-style

Thesis Advisors: Shunsaku MIZUSHIMA, Kayoko SATO

Ⅰ　はじめに

　現在，高脂血症，高血圧，糖尿病などの生活習慣病の有病者・予備軍が増加しており，国民の生涯を通じた生活習慣病予防の更なる充実，特に，健診による予備軍の早期発見と保健指導の徹底が重要となっている．厚生科学審議会地域保健健康増進栄養部会による「今後の生活習慣病対策の推進について（中間とりまとめ）」（2005年9月）では，今後の健診・保健指導について，「予防」の重要性・効果の再認識のため，メタボリックシンドロームの概念の国民への普及定着を目指すこととしている．

　これまでの報告では，一般住民を対象とした内臓脂肪型肥満と生活習慣との関連を示したものはなかった．よって本研究では，内臓脂肪症候群に影響を及ぼす生活習慣の特徴を検討し，今後の健康づくり対策の基礎資料とすることを目的とする．

Ⅱ　研究方法

1．解析の対象

　「おたっしゃ調査」のベースライン調査の結果から主なデータを用いて，腹囲とメタボリックシンドロームリスク要因及び主な生活習慣との関連を検討した．解析対象者は，アンケート調査の有効回答者10,130人（男性4,453人，女性5,677人）である．

2．解析項目

　本研究において用いたベースライン調査の質問項目は，対象者の基本属性（性，年齢，職業，過去5年間における健康診断受診回数，及び受診機会），身長，体重，腹囲，健康診断の結果（リスク要因：肥満，高脂血症，高血圧，糖尿病），主な生活習慣（喫煙・飲酒・運動・食習慣）である．

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　　　　　　佐藤加代子（生涯保健部）

３．解析方法

メタボリックシンドロームの診断基準値である腹囲，男性85㎝，女性90㎝を基準値として，それぞれ基準値未満と基準値以上の２つのグループに分けて，リスク要因と生活習慣についての関連を検討した．

Ⅲ　研究結果

１．対象集団のBMIと腹囲

BMIの値が25以上の者は男性では40歳代で，女性では60歳代で最も多かった．女性では，腹囲90㎝以上の者の占める割合は，60歳代で他の年代よりも高い割合を占めていた．

２．対象集団のリスク要因（肥満・高脂血症・高血圧・糖尿病）保有割合

男性で，肥満者の割合は，40〜70歳代で30％以上を占めていた．高脂血症を持つ者の割合は，40〜60歳代で約過半数であった．高血圧者の割合は，60歳代以上で50〜60％を占め，糖尿病の者は，60〜70歳代で30％以上であった．女性では，肥満者の割合は，60〜70歳代で40％以上を占めていた．高脂血症を持つ者の割合は，50歳代で過半数を占め，60〜70歳代では60％を超えていた．高血圧を持つ者の割合は，60歳代で約半数，70歳代以上で約60％を占めていた．糖尿病を持つ者の割合は，70歳代で約30％であった．

３．腹囲別リスク要因割合

男女共にいずれの年代においても，腹囲が増大するにつれて，肥満，高脂血症，高血圧，糖尿病である者の割合が高くなっていた．さらに，これらリスク要因を持つ者を検討した結果，腹囲の増加に比例して４リスク要因を２つ以上持つ者の割合が増加していた．

４．腹囲とリスク要因との関連

男性腹囲85㎝未満と以上で分類すると，各々のリスク要因に対し，以下の年代で有意差が認められた．高脂血症：40，50，70歳代，高血圧：40〜70歳代，糖尿病：50歳代，これらのリスク要因2つ以上：40〜70歳代．女性腹囲90㎝で分類すると，高脂血症50歳代，高血圧：50〜60歳代，糖尿病：50〜60歳代，これらのリスク要因２つ以上：50〜70歳代であった．

５．対象集団の腹囲と生活習慣（喫煙，飲酒，運動，食習慣）との関連

男性で腹囲に影響を及ぼすものは，「脂身の摂取」「麺類の汁を飲む量」「食べる速さ」「運動の充足感」「飲酒の有無」であった．女性で腹囲に影響を及ぼすものとして考えられたのは，「脂身の摂取」「飲む汁の量」「食べる速さ」「運動の充足感」であった．

Ⅳ　考察

腹囲の診断基準値を超えてリスク要因が一気に増えるのではなく，腹囲の増加とともに徐々に高くなっていることは重視すべき点であると考える．

食習慣では，腹囲が基準値以上の者は，「麺類の汁を飲む量」が多く「肉の脂身」好み，「食べる速さ」も速いことが分かった．「コーヒーや紅茶に砂糖を加えるか」については，基準値未満の者よりも，以上の者で割合が小さく，肥満傾向を自覚しているために，砂糖を控える行動をとっていると考えられる．

Ⅴ．まとめ

腹囲と生活習慣（喫煙，飲酒，運動，食習慣）には，様々な関連がみられた．特に，食習慣については，今回解析に用いた「麺類の汁を飲む量」，「コーヒーや紅茶に砂糖を加える頻度」，「脂身の摂取」，「一日に食べるご飯の量」，「食べる速さ」を用いた結果，一般住民にとっても，わかりやすい，エネルギー過剰を防ぐ食行動は実践されていることが示唆された．

基本的な食習慣として「主食・主菜・副菜が揃った食事をしているか」「欠食することがあるか」「間食するか」「食事の時間が決まっているか」「夜遅くに食事を摂るか」「一日あたりの野菜の摂取量はどれくらいか」などについても検討することが必要であろう．

健康診断などのスクリーニングだけでは，個人の食習慣まで把握することはできない．しかし，高脂血症，高血圧，糖尿病などのリスク要因の低減が図られるという考え方を基本とし，保健事業においても腹囲を計ることにより，今後の保健・栄養指導を充実させていくことが望まれると考える．

〈教育報告〉

平成17年度専門課程Ⅱ
生活衛生環境分野

海上自衛隊における分煙効果に関する研究

藤田博子

Research on the Effect of Dividing the Maritime Self-Defense Force Workplace into Smoking and Non-Smoking Areas

Hiroko Fujita

キーワード：海上自衛隊，分煙，タバコ，ニコチン，多環芳香族炭化水素

Abstract

Objective: To obtain basic data for evaluating the efficacy of dividing the Self-Defense Force workplace into smoking and non-smoking areas.

Materials and Methods: Airborne particles were collected on quartz fiber filters using a personal mini-pump for 24 hours; this collection of airborne particles was repeated four or five times at a smoking area and several non-smoking areas in two Self-Defense Force hospitals, on a ship and on a submarine. The concentrations of nicotine and 8 Polycyclic Aromatic Hydrocarbons (PAHs) including typical carcinogen Benzo[a]pyrene were determined with GC/MS and with HPLC/spectrofluorometric analysis, respectively.

Results: Significantly higher concentrations of nicotine and PAHs were observed in the smoking area than those in non-smoking areas in every facility. There was also a significant difference between the concentration of nicotine in the smoking area and in the entrance to a smoking area.

Conclusion: Nicotine is a practical index of air pollution by smoking. From present results, it was demonstrated that dividing workplace into smoking and non-smoking areas on the ship and submarine was more effective than in the two hospitals.

Keywords : Maritime Self-Defense Force, segregation, tobacco, nicotine, polycyclic aromatic hydrocarbon (PAHs)

Thesis Advisor: Osamu Endo

1　目　的

　海上自衛隊でより効果的な分煙対策を実施するための基礎資料を得ることを目的として，タバコから発生するニコチン及び多環芳香族炭化水素（以下PAHと略）を測定し，空気汚染の実態調査を試みることにした．

2　実験方法

測定対象物質：ニコチン及びPAH 8 種類
測定対象施設：自衛隊病院 2 施設，護衛艦 1 隻及び潜水艦 1 隻

測定地点：①喫煙区画（各施設の喫煙所内部），②非喫煙区画（環境たばこ煙（以下ETSと略）の影響の少ないと考えられる屋内），及び③境界（喫煙場所出入口の非喫煙所側）とし，自衛隊病院 2 施設については④大気（ETSの影響の少ないと考えられる屋外）においても測定を行った．

試料捕集：上記の測定地点において，パーソナルミニポンプ（柴田科学製　Σ300）を用い試料捕集を行った。空気吸引速度は1.0 L/minとし，空気試料を24時間，4～5日間捕集した．

ニコチン分析：Hammond（1987年）らの方法[1]に従い，第 1 段目のフィルターの半分と第 2 段目のフィルターをそれ

指導教官：　遠藤治（生活環境部）

それ10 N NaOH水溶液で処理した後，n-ヘプタン0.5 mlで振盪抽出した．抽出液の上澄み液をGC/MSを用いてニコチンの分析に供した．

PAH分析：松下らの方法[2]に従い粒子状物質が付着している第1段目のフィルターの半分をアセトニトリル/超音波抽出に供した．その抽出液の上澄み液をHPLC/分光蛍光検出法を用いてPAHを分析した．

統計解析：平均値の検定はt-検定（両側p＝0.05）によりSPSS Ver.11を利用して行った．

3　結果および考察

　自衛隊病院Xは一階屋外の半閉鎖型空間の喫煙区画のニコチン濃度は，平均で12μg/㎥あり，他のいずれの地点より高いことが認められた．境界Aは喫煙区画の1/6の濃度，境界Bは1/40の濃度であり，各々喫煙区画との間に有意差が認められた（両側p＜0.05）．このことから，喫煙所を屋外に設けている自衛隊病院Xでは，ある程度効果的な分煙ができているものの，渡り廊下に喫煙区画の若干のニコチンが流入していることが示唆された．今回の測定結果から推定されるニコチンの流入量は，喫煙区画の17％に達している．境界部分は渡り廊下となっており，病院職員ばかりでなく一般患者も利用していることなども考え合わせると，改善の余地があると考えられる．

　一方，BaP濃度は，喫煙所内部と大気及び非喫煙区画と間に有意差が認められなかった．BaPはタバコの煙からも発生するが，車の排気ガスや調理の過程でも発生し，一般環境空気中に広く存在することから，喫煙区画内部では喫煙に由来するBaP汚染が示唆されるものの，境界も含め非喫煙区画への汚染はニコチンほど明瞭ではないことが判った．

　潜水艦においては，閉鎖型空間となっている喫煙区画のニコチン濃度は，平均で9.51μg/㎥であった．また，境界では0.08μg/㎥で，喫煙区画の1/120の濃度となっており，今回測定した施設の中でもっともニコチン濃度の希釈率が高くなっていた．これは，喫煙区画の出口の防水扉が常に密閉されており，喫煙区画の汚染空気が流出しにくくなって

いるためと推測される．

　一方，PAHでは定量下限値未満の試料が多く，代表的な発がん物質であるBaPでも境界と非喫煙区画の定量性が低かったため，BkFを用いて測定地点間の濃度比較を行ったところ，喫煙区画の濃度が高く，境界あるいは非喫煙区画との間に有意差が認められた．また，潜水艦の喫煙区画では他の3施設の喫煙区画と比較して，BaPなどはほぼ同程度であったが，PyとBaAの濃度は数倍程度大きい値であった．ディーゼル自動車から排出されるPAH汚染の寄与率調査で，Py≫BaP〜BghiPの順であるとの報告もあり，潜水艦の動力であるディーゼルエンジンなどの影響も考えられる．また，BaAはIARCの発がん分類で，BaPと同じくグループ2Aに分類されていることなども考慮すると，潜水艦のような閉鎖性の高い環境では，喫煙以外の要因も考慮に入れて，今後より詳細な調査を実施する必要性が示唆された．

4　結　論

　（1）自衛隊病院X・Yと比較して，護衛艦・潜水艦の分煙対策の方が効果的に行われていた．これらを決定する要因として，施設内における喫煙区画の設置場所や，構造，喫煙区画の密閉性，気流などが示唆された．

　（2）空気中のニコチンはほぼ100％タバコに由来することから，分煙効果を評価する指標として有用であることが確認された．

　（3）PAHは，ニコチンと比較した場合喫煙による寄与率は大きくないものの，化石燃料の燃焼や，調理などによる発生も含めて発がん関連物質の指標と考えられることから，本研究で実施したように，ニコチンと組み合わせて測定することにより分煙効果を評価する上で補助的だが重要な指標となることが示唆された．

5　文　献

1）Hammond SK, et al *EST* 1987; 21: 494-7.
2）松下秀鶴，他　大気汚染学会誌　1987; 22（5）: 334-9.

無作為化比較試験で採用した割り付け方法の統計的推論へ与える影響

長谷川貴大

Restricted Randomization-Based Inference
in Randomized Controlled Trial

Takahiro HASEGAWA

Abstract

The most common basis of a statistical test is the concept of the "population model", where it is assumed that the sample of subjects is representative of the reference population and the subjects' responses are independently and identically distributed. In spite of the lack of a formal sampling in RCT, the population model is invoked as the basis for data analysis, as though a formal sampling basis existed. Therefore, to reflect randomization procedures applied, it is useful to introduce the "randomization model", where it is assumed that the set of observed responses is fixed and the treatment assignments is random. In this article, we conducted Monte Carlo simulations to evaluate the performance of statistical inference under the invoked population model and the randomization model. Randomizations considered were five methods: complete randomization, random allocation rule, permuted block design, stratified randomization and minimization method. When minimization method was used, the power of randomization-based inference was higher than that of invoked population-based inference without covariate adjustment and slightly lower than that of invoked population-based inference with covariate adjustment. Based on our findings, we can recommend the use of randomization-based inference with minimization method for a confirmatory RCT with important prognostic factors.

Keywords : randomization model, population model, permutation tests, linear rank tests, Monte Carlo

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Ⅰ．Introduction

The most common basis of a statistical test is the concept of *population model*, where it is assumed that the sample of subjects is representative of the reference population and the subjects' responses are independently and identically distributed. In spite of the lack of a formal sampling in RCT, the population model is invoked as the basis for data analysis, which is called *invoked population model*. Therefore, both population model and invoked population model do not reflect the practical situation of RCT. Rather, it will be quite natural to introduce the *randomization model*[1], where it is assumed that the treatment assignments is random and the set of observed subject responses is fixed. In this article, we conducted Monte Carlo simulations to compare the performance of statistical inference under the invoked population model with that under the randomization model focusing on two-armed comparative trials.

Ⅱ．Methods

As a simulation model, we considered here the following clinical trial where 1) 96 subjects are recruited and randomized to either treatment A or treatment B and 2) sex and severity (grade) are considered as important known prognostic factors (covariates) and

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Table 1 Distribution of prognostic factors

		Grade		
		Minor	Moderate	Serious
Sex	Male	15	23	10
	Female	15	23	10

used as the stratified factors. Regarding the distribution of prognostic factors of 96 subjects, we considered a case shown in Table 1. Let T_i, $i = 1, …, 96$ be 1 if subject i was assigned to treatment A and 0 if treatment B, α_i be 0 if sex was male and 1 if female, and β_i be 0 if grade was minor, 1 if moderate and 2 if serious. The responses y_i were assumed to be

$$y_i = \delta T_i + 3\alpha_i + \beta_i + \varepsilon_i, \ \varepsilon_i \sim N(0, 1^2). \quad (1)$$

The effect size δ of treatment was changed from 0.0 (null hypothesis) to 1.0 by 0.1. As the statistical tests for the null hypothesis of no differences between two treatment groups, we used three procedures derived from the family of linear rank tests with simple ranks: Wilcoxon rank-sum test（Wilcoxon test）and van Elteren test under the invoked population model and Wilcoxon rank-sum test under the randomization model （Wilcoxon type test）. The 10,000 sets of simulation data were generated to evaluate the performance of statistical inference under the two models. The proportion achieving the two-sided p value lower than 0.05 was calculated.

Ⅲ．Results

When the stratified randomization or the minimization method was used, van Elteren test or the Wilcoxon type test also provided type I error probability close to the nominal significance level. In contrast, the type I error probability of Wilcoxon test turned out to be close to zero, quite conservative. When complete randomization, the random allocation rule or the permuted block design was used, Wilcoxon test and Wilcoxon type test provided similar powers. Van Elteren test was shown to provide higher power than these tests. Figure 1 shows the results of the stratified randomization. Wilcoxon type test was shown to provide lower power than van Elteren test. Wilcoxon test provided lower power than these tests. Figure 2 shows the results of the minimization method. Wilcoxon type test provided powers slightly lower than van Elteren test but higher than Wilcoxon test.
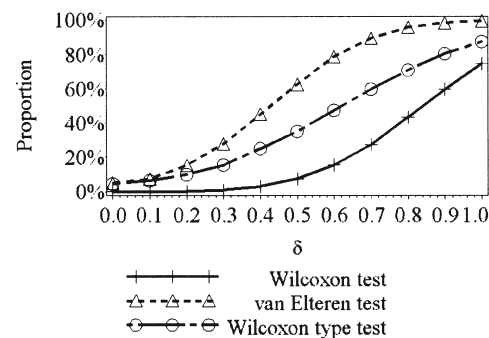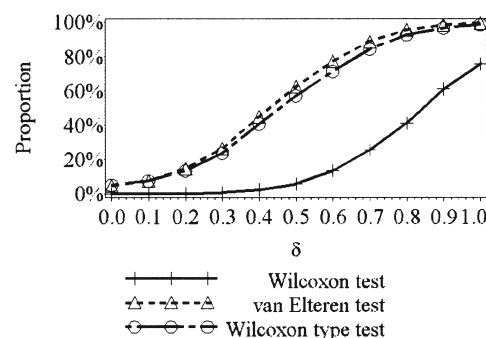

Fig.1. Stratified randomization

Fig.2. Minimization method

Ⅳ．Discussion

The results of the simulation revealed that the randomization-based and invoked population-based inference with covariate adjustment could bring closer to the nominal significance level. Thus, when using the stratified randomization or the minimization method, it is necessary to specify the adjusted method in the statistical analysis plan. However, the validity of covariate-adjusted analysis under the invoked population model depends on the correctness of model assumptions that cannot be confirmed. Therefore, it is much better to apply the randomization-based inference that provides the basis for an assumption-free statistical test. When the stratified randomization is used and some blocks are not balanced, imbalances additive across strata result in an overall imbalance and the randomization-based inference provides lower power than the invoked population-based with covariate adjustment.

Ⅴ．Conclusion

We recommend that 1）minimization method should be used as a method of randomization and 2）randomization-based inference should be used as a

statistical analysis in a confirmatory randomized controlled trial with important prognostic factors.

References

1）Rosenberger WF, Lachin JM. Randomization in clinical trials, theory and practice. New York: John Wiley & Sons; 2002.

〈教育報告〉

平成17年度専門課程Ⅱ
病院管理分野

慈恵医大附属病院における医療の質指標の検討
―国立大学附属病院とのベンチマークを中心に―

浅野晃司

A Study on The Indicator of Medical Treatment Quality in Jikei Medical University Hospital;
Centering around the benchmark comparing with National University Hospitals

Koji ASANO

Abstract

Purpose: To clarify the problems with which we should grapple to offer a highquality medical service in future by comparing the quality of medical treatments between the Jikei University Hospital and National University Hospitals using DPC data for fiscal 2004.

Subjects: The subjects of the benchmark for comparing with the Jikei Medical University Hospital were 42 National University Hospitals throughout the country, DPC Mode 1 in fiscal 2004, and related data.

Method: After extracting indicators considered suitable for assessing six areas（hospital characteristics, patient characteristics, hospital efforts, treatment results, patient safety, and productivity）, the value for the Jikei Medical University Hospital and the mean value for National University Hospitals in each indicator were found, along with our ranking amongst all of the hospitals and the deviation value. The average number of days' hospital stay and mortality rate were adjusted with age, gender, level of consciousness, and presence or not of surgery as the confounding factors. Results and discussion: In terms of hospital efforts and productivity among the six categories studied, results for the Jikei Medical University Hospital were generally good when compared with National University Hospitals; but more efforts were considered necessary for a specificfunction hospital in terms of hospital characteristics, patient characteristics, and patient safety. Treatment results for several diseases were not satisfactory, so it is necessary to analyze the causes of such results.

Keywords : medical treatment quality, indicator, benchmark, DPC

Ⅰ．目的

　今回，我々はH16年度に厚生労働省に提出したDPCデータを使用して，病院特性，患者特性，病院努力，診療成果，患者安全，生産性の６つの側面から，自院と42の国立大学附属病院を比較することにより，今後慈恵医大附属病院が良質な医療サービスを提供するために取り組むべき問題を明らかにすることを目的とした．

Ⅱ．対象と方法

　全国の国立大学附属病院42病院を慈恵医大附属病院とのベンチマークの対象とした．各種データは主に慈恵医大附属病院を含む43病院の平成16年度DPCデータ（様式１）を使用した．まず，⑴ 病院特性　⑵ 患者特性　⑶ 病院努力　⑷ 診療成果　⑸ 患者安全　⑹ 生産性の６つの分類を設定し，DPC関連データからそれぞれを評価する上でふさわし

いと思われる指標を抽出した．（別紙参照）「診療成果」に関しては，代表的な26疾患をベンチマーク対象とし，①平均在院日数　②死亡率　③手術死亡率（肺炎除く）④術前入院日数（肺炎除く）⑤術後入院日数（肺炎除く），⑥退院時転帰（治癒＋寛解＋軽快率）の6指標に関して検討した．なお，平均在院日数と死亡率に関しては，年齢・性別・意

識レベル・手術の有無などを交絡因子として調整を行った．

Ⅲ．結果および考察

　病院特性は紹介率，逆紹介率，高度先進医療実施件数などの指標において国立大病院の平均を下回った．患者特性に関しては国立大病院に比べ，軽症事例の割合が高い傾向

検討指標一覧

	指標	定義・算出方法
病院特性	平均在院日数 外来患者・入院患者比率 紹介率 逆紹介率 臓器移植件数（心・肝・腎・肺・造血細胞） 長期（90日以上）入院患者収容率 入院手術率 緊急手術率 異常分娩率 ICUへの緊急入室率 高度先進医療実施件数 全麻の実施率	精神科除く 1日平均外来患者数／1日平均入院患者数 （紹介患者数＋救急搬送患者数）／初診患者数 逆紹介患者数／初診患者数 入院1000人あたりの件数 長期入院患者数／退院患者数（精神科除く） 延べ手術件数／延べ入院件数 緊急手術件数／延べ手術件数 異常分娩件数／全分娩件数 ICU緊急入室患者数／延べ入院患者数 H16年度前半のみ 延べ全麻件数／延べ手術件数
患者特性	救急外来受診患者率 併存症(注1)を有する手術患者率 入院時JCS(注2)がⅡ群以上の患者率 入院時ADL(注3)スコア15点以下の患者率 全固形がん(注4)StageⅡ以上の患者率 全固形がんでPS2(注5)以上の患者率 急性心筋梗塞のkillip分類(注6)class2以上の患者率	延べ救急外来受診患者数／延べ外来患者数 併存症を有する患者の延べ手術患者数／延べ手術件数 JCSⅡ群以上の延べ患者数／延べ入院患者数 ADL15点以下の患者数／延べ入院患者数 stageⅡ以上の固形がん患者数／固形がん全患者数 PS2以上の固形がん患者数／固形がん全患者数 class2以上の急性心筋梗塞患者数／急性心筋梗塞全患者数
病院努力	1患者1カルテの有無 診療情報管理に従事する者の数 クリニカルパス適用患者率 患者・家族からの相談件数 治験実施件数 CPC検討症例数 病理解剖数 日本医療機能評価機構認定の有無	H16年11月1日時点 病床100あたり 完結した患者のみ（逸脱例は除く） 全相談件数／退院患者数（H15年度年間） H16年度前半のみ H16年度DPC調査期間中のみ H16年度DPC調査期間中のみ H16年11月1日時点
診療成果	代表的な26疾患(注7)に関して ①　平均在院日数（調整あり） ②　死亡率（リスク調整あり） ③　手術死亡率（リスク調整あり） ④　術前入院日数 ⑤　術後入院日数 ⑥　退院時転帰（治癒＋寛解＋軽快率） を比較した	（26疾患の選出方法） 各MDC（1〜16）において 1）　症例数が多いもの 2）　在院日数のばらつきが多いもの 3）　死亡率が高いもの 4）　他院からの紹介の多いもの を5〜6疾患ずつ選び出し，4条件を概ね満たした26疾患をベンチマークに適した疾患として選出した。
患者安全	MRSA感染新規発症率 転倒・転落発生率 針刺・切創件数 ヒヤリハット報告件数 褥創新規発生患者率	MRSA新規発症患者数／入院延べ日数（H15年度年間） 転倒・転落延べ患者数／入院延べ日数（H15年度年間） 針刺・切創事故件数／総病床数 報告件数／退院患者数（H15年度年間） 褥創新規発生患者数／入院延べ日数（H15年度年間）
生産性	医師一人あたり手術件数 医師一人あたり退院患者数 医師一人あたり延外来患者数 看護師一人あたり延入院患者数 看護師一人あたり延外来患者数 薬剤師一人あたり薬剤管理指導件数 麻酔医一人あたり全麻件数 理学療法士一人あたりのリハビリ件数	延べ手術件数／医師数 退院患者数／医師数 延べ外来患者数／医師数 延べ入院患者数／看護師数 延べ外来患者数／看護師数 薬剤管理指導件数／薬剤師数 延べ全麻件数／麻酔医数 延べリハビリ件数／理学療法士数

が見られた．病院努力は概ね良好であったが，クリニカルパスの導入率が国立大病院の平均を大きく下回った．診療成果では外科の一部の疾患と婦人科領域の疾患で国立大病院に比べ死亡率が高く，原因の精査が必要と思われた．患者安全はMRSA感染，転倒・転落，褥創の3指標において国立大病院の平均を超えていた．生産性は概ね良好であったが，自院においては病棟と外来との間で生産性のアンバランスが存在しているように思われた．

Ⅳ．まとめ

　今回のベンチマークを通して今後自院が取り組むべき課題としては，①地域との連携強化による紹介率の向上　②先進的あるいは高度な医療の推進　③クリニカルパス導入による医療標準化の推進　④死亡率を中心とした診療成果の精査　⑤患者安全の推進　などが重要と思われた．

〈教育報告〉

平成17年度専門課程Ⅱ
病院管理分野

医療法人立医療・介護グループ組織における人材育成戦略の検証

西川大輔

Strategies of Human Resource Development in Healthcare and LongTerm Care Corporation Group Established by Healthcare Corporation

Daisuke　Nishikawa

Abstract

Purpose: This article proposes the assumption that the healthcare and long-term care corporation group marked by highly effective human development strategies has four characteristics: (1) penetrated vision and clear educational goals; (2) firmly established and structured system to provide adequate education and training; (3) introduction of management by objective; and (4) focus on individualized education and learning. The purpose of this study is to examine this hypothesis and identify the effective human development strategies to hold promise to improve care.

Design and Methods: Two healthcare and long-term care corporation groups established by healthcare corporation (A, B corporation) which have similar bed-size and practices were selected. The survey was conducted with a focus on staff attitudes toward the educational and training system. The human development strategies of two sites were compared and analyzed.

Results: (1) Vision penetrated deeply in both corporations. Clear educational goals were established by A corporation. A has a larger number of adherents with a clear vision of their organization than B. (2) Neither corporation has yet established a structured system to provide education and training, and both sets of staff keenly realize the necessity of such a system. (3) B has introduced management by objective, and indicates the existence of better boss-subordinate communication than A. It is speculated that this contributes to the maintenance of favorable organization culture, but little counseling was provided for career improvement. (4) Although individualized education and learning was not yet implemented by either corporation, most of the staff supported it.

Implications: From these findings, we can conclude that the hypothesis was generally justified. We also found that physical fatigue played a considerable effect on the effectiveness of individual education and learning.

Keywords : human resource development, the educational and training system, questionary survey

Ⅰ．研究目的

　今回の研究では，①理念が浸透し，明確な教育目標がある，②体系的な教育研修制度が確立している，③目標管理制度を導入している，④個別教育が重視されているというような人材育成戦略をとっている法人は教育研修効果もあ

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がり，質の向上に繋がるという仮説を実証する．

Ⅱ．研究デザインと方法

　法人間の人材育成戦略を比較，分析するために現在所属する法人と規模，診療機能，職員構成等が似ている法人を１つ選び出し，所属職員に教育研修体制に関する意識調査を中心とした，紙面によるアンケート調査を実施した．調査項目は①基本情報（回答者の属性），②法人の理念と目標，

③個人の目標，④OJTとOFF-JT，⑤法人全体の教育体制に分類され，調査項目②から，各小項目を４段階に分け評価した．調査項目は事前に各法人の担当者に確認頂いた．データの集計，分析はExcelとSPSSを使用した．なお，調査票の回収率はで84％（604/718枚）である．

Ⅲ．結果

　２つの法人ともに法人の理念，目標，所属部署目標の浸透度は高い．調査③において，低い結果となったものは，「上司とのキャリアアップについての話し合い」，「上司のフィードバック」，「現在所属する法人で勤務を続けたいか」という項目である．また，A法人よりB法人のほうが，上司が部下に対するアプローチが積極的に行われているという結果になった．また，２つの法人ともに職場内でのミーティング，勉強会，法人内研修を積極的に開催しており，そこで得た知識・技術を日常業務に活用しているが，職場外研修に関しては２つの法人ともに，あまり積極的に参加していない．法人全体の教育研修体制に関しては，A法人は明確な教育目標をたて，積極的に職員教育に力を入れているが，職員の教育研修体制への満足度はあまり高くないという結果になった．

　２つの法人に共通して「明確な将来像がある」と回答した職員は法人理念，目標の認識率が高く，法人理念と一致した個人目標を立て，積極的に行動している．上司とのコミュニケーションも取れ，指導を受け，適正な評価を得ていると感じている．勉強会，法人内研修，職場外研修にも積極的に参加している．個人別の能力育成プランの必要性を感じている．ただし，明確な将来像がある職員のほうが上司とキャリアアップについての話し合いは行っていないという結果になった．

Ⅳ．考察

　法人の理念については90％近くの職員が知っているのに対し，法人全体の単年度目標は30％の職員が知らないと回答している．これは目標が役職者を中心とした一部の職員にしか伝わっていないことを示している．組織が理念をどのような方法で実現しようとしているのか具体的な方法を周知しないと，個人のキャリアアップの方向性との乖離を生み，双方に効果的な結果を生み出さなくなってしまう．

　２つの法人で明らかな差がみられたのは上司の部下に対するアプローチの度合いについてである．より良い結果を出したB法人については「目標管理面接」制度を導入していることも関係し，上司と部下のコミュニケーションは良好で，上司の指導・評価についても良い評価を得ている．ただし，「目標管理面接」制度の目的である法人理念と個人理念の一致度についてはあまり高くなく，キャリアアップについての話し合いはほとんど行われていない．これは必ずしも制度がうまく機能していないことが原因と考えられる．

　「明確な将来像」を持っている職員のほうが上司とのキャリアアップについての話し合いを行っていないということについては，キャリアアップするのを支援する組織風土というものが根付いていないことや上司の知識・技術不足が原因と考えられる．

　２つの法人は教育研修について積極的な活動を行っている．A法人では職員の多くが若く勤務経験も少ないため，入職後３年を重点的に，「職員全体」と「職種別」の２種類の明確な教育目標を作成し，教育研修を司る専門部署を創設している．しかし，法人の教育研修体制についての職員満足度はあまり高くない．自由記載内容を分析してみると，部としては積極的に活動しているが，その活動内容に現場の声が反映されておらず，現場との乖離やシステムの形骸化に原因があると推測される．B法人では人材育成については所属部署のOJTと自発的な勉強会によって支えられている．しかし，法人全体の教育研修については年間計画がなく，場当たり的に研修が開催されているために組織の体系的な教育研修体制構築を望む声が大きい．

　組織は多様化する職員の教育ニーズに対応するためにも，現行の教育研修体制を見直し，その在り方や目的を考え直す必要がある．そのためにはキャリア・ディベロップメント・プログラムの導入が方法の一つと考えられる．

Ⅴ．まとめ

　以上のことから，仮説はおおむね妥当と思われる．また，今回の調査の中で，身体的な疲労が教育の効果，その中でも個人のモチベーションにかなり影響しているという結果がわかった．人材育成の効果を挙げるには労働環境の整備も合わせて推進すべきことである．

〈教育報告〉

平成17年度専門課程Ⅱ
地域保健福祉分野

美原記念病院における原価計算システムの構築に関する研究

内田智久

Study on Building a Cost Accounting System
in Mihara Memorial Hospital

Tomohisa UCHIDA

Abstract

In today's medical environment, hospitals are required to make remediation efforts to improve both the quality of medical care and the quality of management. The Japan Council for Quality Health Care pointed out in its review that our hospitals' mid- and long-term planning for the quality of management was incomplete. Our administration department has not provided the management information required for mid- and long-term planning. In this study, we performed cost accounting using data collected from January to June 2005 in our hospital and explored which cost accounting system should be built. Cost accounting by department showed that the hospital outpatient clinic was the most profitable. Cost accounting by branch of medicine showed that the profit from the orthopedic surgery was unexpectedly low. Cost accounting by disease showed that the medical care for cerebral infarction and cerebral apoplexy were the most profitable because there were many cases of these diseases. Comparison with the simulation of DPC implementation revealed issues to be addressed during future DPC implementation. In addition, the results of cost accounting provided important accounting information for management to make decisions about the three issues our hospital was facing. This study made it clear that building a cost accounting system quickly is important to improve our hospital's quality of management.

Keywords : Cost accounting, mid-and-long term planning, DPC

Thesis Advisor: Toshiro KUMAKAWA

Ⅰ．背景

　病院を取り囲む環境は今日大きく変化している．今日のわが国の医療における最も重要な課題は，「医療の質の保障」と「経営の質の確保」である．その充足のために医療機関は従来の運営方針から大幅な方向転換を必要とされている．

Ⅱ．問題意識

　美原記念病院は脳神経疾患に特化した189床のケアミックス型の専門病院であり，病院の理念は「脳卒中の急性期からリハビリ，在宅まで一貫した医療の提供」である．これまで美原記念病院は，医療の質と経営の質の両面において良好な運営がなされていると考えられていたが，日本医療

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機能評価機構の審査で中長期計画の策定が不充分であることが指摘された．その大きな原因のひとつとして，これまで事務部門において病院の経営戦略の策定に必要な会計情報を作成しなかったことがある．今後病院の中長期計画を策定するうえで必要となる会計情報を継続的に提供するためには，病院会計に原価計算システムを構築することが急務であると考えられた．

Ⅲ．目的

　本研究の目的は，当院の過去のデータを用いて原価計算を行い，当院における原価計算の有用性と当院に原価計算システムを構築する際の課題を明らかにすることである．

Ⅳ．方法

　本研究においては，当院の平成17年1月から6月の診療

実績をもとに部門別原価計算，診療科別原価計算，疾病別原価計算を実施した．それぞれ対象設定は当院の各病棟および外来，各診療科，当院で最も症例数の多い２疾患とした．

Ｖ．結果

部門別原価計算の結果を表１に，診療科別原価計算の結果を表２に，疾病別原価計算の結果を表３に示す．

表1；部門別原価計算結果　　　　　　　　　　単位；万円

1ヶ月平均	急性期	特殊疾患	回復期1	回復期2	外　来
収　入	7,328	4,208	4,223	4,394	3,525
直接支出	4,774	1,539	1,767	1,661	1,152
間接支出	1,995	1,275	1,484	1,441	971
経常利益	560	1,395	972	1,292	1,402

表2；診療科別原価計算結果　　　　　　　　　単位；万円

1ヶ月平均	神経内科	脳神経外科	整形外科	リハビリ科
収　入	8,056	8,516	1,850	5,257
直接支出	3,561	3,827	1,135	2,371
間接支出	2,372	2,474	596	1,724
経常利益	2,123	2,216	119	1,163

表3；疾病別原価計算結果　　　　　　　　　　単位；円

疾患名	脳梗塞		脳出血	
平　均	1入院当り	1日当り	1入院当り	1日当り
収入合計	630,537	56,144	445,043	44,073
直接支出	299,779	27,184	158,302	16,817
間接支出	135,203	11,398	146,141	13,756
支出合計	434,982	39,761	304,443	29,418
経常利益	195,555	16,353	140,600	14,654

Ⅵ．考察

原価計算を用いて現在当院が抱えている３つの問題について検討した．

⑴　整形外科の廃止の適否に関する検討

整形外科医師の退職に伴い，整形外科を廃止するか否かの判断が求められている．整形外科の廃止の影響として，入院中に整形外科疾患に罹患した患者に対する対応時の問題と整形外科が減益となることへの対応が考えられた．他の診療科が主たる科となっている患者で整形外科との併診が成されているケースを調べたところ症例数は極めて少なく，また診療科別原価計算より整形外科の経常利益は非常に低いことから，整形外科の廃止は当院にとってそれほど大きな影響にならないだろうことが予想された．

⑵　外来待ち時間の適切な対策に関する検討

待ち時間短縮のため外来患者数の削減について検討したが，外来は部門別原価計算の結果より最も多い経常利益を出しているため患者数の削減は経営的に適切な対策ではな

く，むしろ患者数をきちんと確保するような対策が必要であることが明らかとなった．

⑶　急性期病棟の機能の見直しに関する検討

DPCへの対応としてICUの開設が検討されている．そこで，現在の出来高点数をDPC点数に置き換え，さらにICUを４床開設したと仮定してシミュレーションを実施した．部門別原価計算の結果，経常利益はほとんど変わらないことが明らかとなった．それに対しICU開設のために高額な設備投資費用がかかるため，ICUの開設は経営的にはマイナスであることが予想された．
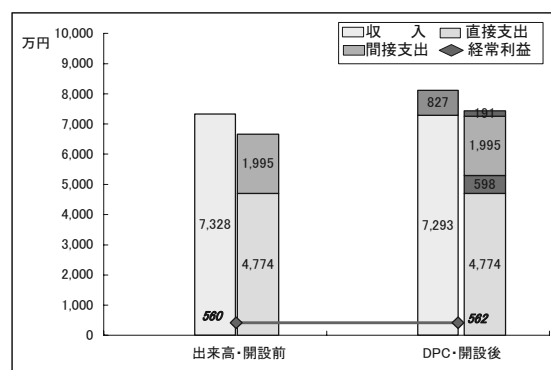

図１；ICU導入シミュレーション結果

Ⅶ．結論

原価計算を実施することで当院における内部管理のための評価指標を求めることができた．また当院が抱える経営的な問題に対し，病院長の意思決定の判断材料となるような情報を作成することができた．当院にとって原価計算は有用であることが明らかとなった．また，当院において原価計算システムを構築する際の課題として，計算に必要な情報を抽出できる院内システムの構築，事務部門の再編などがあることを明らかにすることができた．

Ⅷ．まとめ

原価計算の実施は病院経営に対して必要な会計情報を抽出するだけでなく，病院経営に必要な事務部門の人材育成のツールとしても有効であると考えられた．今後当院においては経営基盤を安定させるための会計情報の作成手段という観点と事務部門の人材育成という観点から，原価計算システムを構築し病院経営に活かせる体制を確立していくことが望まれる．

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〈教育報告〉

平成17年度専門課程Ⅰ
国際保健分野

Assessment of Health Service Delivery System for Preventing Mother-to-Child Transmission (PMTCT) of HIV/AIDS Program in Mbarara District, Uganda

James Ssekitooleko

Keywords : PMTCT, VCT, HIV, health care delivery system, quality, cost/effectiveness

Thesis Advisor: Tomoko Kodama

Introduction

Mother-to-child transmission of HIV in Uganda accounts for more than 90% of all pediatric cases, given the high prevalence of HIV among women of the reproductive age group and the high fertility rate. Despite the fact that a comprehensive PMTCT intervention is essential for the reduction of MTCT in children, improvement of MCH care and control of HIV in general, little is known about the current quality of the services, the performance of the intervention, and the factors within the health service delivery system for PMTCT in the district affecting the program.

Aim and objectives

The main aim of the study was to understand the factors laid in the health service delivery system so as to reduce MTCT of HIV more effectively. Specific objectives were to assess the quality and performance of the PMTCT program, analyze the roles of related stakeholders, understand the factors affecting health workers, describe patients' perception and assess their satisfaction, and simulate the integration of PMTCT activities into maternal and child healthcare.

Methodology

In a cross-sectional study involving five health centers selected randomly in five counties (two urban and three rural), health workers were selected randomly from the health centers' staff registers and all in-charges

of the centers were included. Pregnant women who attend ANC at the selected centers on the day of interview were randomly selected at time of exit and included in the study after verbal consent. The quantitative data were gathered through exit questionnaires to pregnant mothers and questionnaires to health workers. The qualitative data were gathered through in-depth interviews with the key persons. Observations of the centers' records plus the inventory of supplies and equipment was done. The quality of the services at each center was measured using six dimensions of quality based on Maxwell's original version and WHO's measure-of-quality indicators (accessibility, availability, affordability, acceptability, effectiveness and efficiency). Performance at each center was measured using UNAIDS' six performance indicators.

Results

Five health centers were visited; 66 health workers and 159 pregnant women were interviewed. The quality dimensions in the district were: availability 65.5%; accessibility 44%; affordability 100%; acceptability 69.4%; and effectiveness was estimated as 21.6% of infants infected with HIV. Urban centers had better scores than rural centers in terms of accessibility (57% vs. 31%), acceptability (88% vs. 43%), and effectiveness of intervention. The program was found to be cost-effective at USD 30 per HIV case averted at 7.5% HIV prevalence in the district. The program performance indicators were higher in urban centers than rural centers, especially the participation rate (41% vs. 12%). All centers had low

指導教官：　　児玉知子（政策科学部）

coverage of services in the area of jurisdiction（urban 13.7%; rural 12.9%）. Lack of sufficient staff, inadequate supply, insufficient supervision, poor infrastructure, and continuous education were identified as the factors causing low performance in the rural centers. Constraints reported by health workers in all centers included an increased workload（78.4%）and inadequate salary（74.5%）. Health workers in rural centers were more likely to mention lack of supplies（73.3%）, irregular CME（53.3%）, and lack of supervision（56.7%）than their counterparts in urban centers（P＝0.016, ＜0.001, ＜0.001）. Mothers' awareness and knowledge about the program was found to be high（94.3% and 89.9%）, and they did not differ significantly among those attending rural and urban centers（p＝0.18 and 0.54）; but on the mode of MTCT, mothers who attended rural centers were more likely to have the wrong information despite them all receiving counseling（p＝0.015）. Individual counseling was found to be associated with likelihood of accepting testing（OR 8.37 95%CI 1.092-64.10, p＝0.04）which was done only in urban centers. 88.7% of mothers were satisfied with the integration of PMTCT into routine ANC but there was a significant difference among those who attended rural centers than urban ones（p＝0.012）. Education, marital status, and fears about the intervention, individual counseling and confidentiality of the tests were found to be the highest predictors of PMTCT acceptance. Eight major stakeholders were identified with MOH and DDHS found to be more important and powerful in the program, while international organizations and EGPAF had a strong supporting role. The local politicians had low knowledge on the program but had power.

Discussion and conclusion

The performance and quality of the program was higher in urban centers than rural centers as result of factors within the health system for the program rather than only the socio-economic factors of the population. The centers grossly lack resources, continuous medical education, and follow-up on babies born to HIV positire mothers. The quality of counseling in the rural centers is low, resulting in poor knowledge of the program, acceptance rates, and effectiveness of intervention in the centers. Male and community participation is still low and needs improvement to achieve great impact. Simulated integration of the program into the existing health system revealed strong linkages though challenges exist, especially the irregular medical supplies meant for routine ANC, as supplies for the program use a different procurement line which is more efficient than that of maternal and child healthcare.

Recommendation

Health center managers should revise the outreach program to smaller centers and villages to improve on access and availability of services to the rural areas and streamline the two-way referral system. They should also provide regular continuous medical education and supervision to the workers to improve the quality of counseling. There is a need to utilize lay counselors, peer educators and traditional birth attendants to reduce the workload faced by health workers. The district technical team should communicate regularly with local politicians to increase their knowledge on the program and devise means to link the program with other centers （AIC and TASO）that are more friendly to men.

〈教育報告〉

平成17年度専門課程Ⅰ
国際保健分野

Drinking Water Safety and Sanitation in Relation to Diarrheal Diseases in Peri-Urban Area of Mongolia

Nyamragchaa Chimedtseren

Keywords : water supply, diarrheal diseases, drinking water, household stored water, sanitation, spring, pit latrine, public water kiosk

Thesis Advisors: Mari Asami, Tomohiro Matsuda

Aim and Objectives

The aim of the study is to identify the association between diarrheal diseases and drinking water quality, sanitation in peri-urban area. The specific objectives are to determine the drinking water supply and sanitation status of the households in the selected area, the bacteriological quality of drinking water at the source and point of use in order to determine possible contamination points and the incidence and prevalence of diarrheal diseases among the population, and identify the relationship between diarrhea and water and sanitation.

Methodology

A prospective cohort study involving 169 households (109 in peri-urban and 60 in urban area) was conducted in two khoroos (sub-district) of the district of Bayanzurkh, Ulaanbaatar city. The questionnaire on water supply and sanitation administered to the households and diarrhea cases in the households were registered over a period of 10 weeks. 1621 water samples were taken from water sources and household stored water for bacteriological and chemical examination. Data was analyzed by using SPSS Ver.11.5 and Microsoft Excel.

Results

In peri-urban area, 40.4% of the households use municipal water supply, while the rest use spring water

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alone or supplementary to municipal water supply. The urban residents use piped water system. Behavior to drink non-boiled water is practiced in more than half of the households in peri-urban area when compared with only 6.7% of the urban residents. In peri-urban area, 21.1% of the households had no pit latrine and 31.2% had no hand washing device.

Only approximately half of the households in both area had behavior of washing hands after using toilet, cleaning child's faces, before feeding child, before cooking and eating, and hand washing after using toilet was the most rarely practiced one.

Bacteriological and chemical parameters of water sources as water plant, tanker truck and public water source were on average within the acceptable level of the national standard for drinking water. Spring water had total bacteria, total coliforms, nitrite and nitrate in excess than the guideline requirements. Household stored water had higher level of contamination when compared with source water and had the parameters in the range of : total bacteria $5.86\text{-}6.36 \times 10^3$, total coliforms 1007.7-1101.6, ammonia 0.119-0.48, nitrite 0.018-0.026 and nitrate 9.457-9.682. Tap water was of better quality than the household stored water, despite the total coliforms of it was three times in excess than the standard requirement.

The incidence rate of diarrhea 0.3 case/household year in the peri-urban area was three times higher than the rate in the urban area, which was 0.1 case/household year.

From all studied factors, the factors as distance to water source, water quality score, latrine availability, drinking of raw water and sink availability were found

to be associated with diarrhea prevalence. Households, located far from their water source（RR＝3.20, 95% CI＝2.09-4.89）, using poor quality water（RR＝2.41, 95% CI＝1.32-4.39）, without latrine（RR＝2.15, 95% CI＝1.45-3.19）and sink（RR＝1.56, 95% CI＝1.60-2.31）, and drink raw water（RR＝1.90, 95% CI＝1.21-2.99）were at increased risk compared to households, located near to a water source, using relatively good quality water, with latrine and sink, and do not drink raw water.

Conclusion and Recommendation

In this study water supply and sanitation are associated with diarrheal diseases and found to be one of the contributing factors for endemic diarrheal diseases and found to be one of the contributing factors for endemic diarrheal diseases in peri-urban area. The inadequate access to water source and lack of sanitation facilities as latrine and less importantly sink, and drinking water contaminated in the home coupled with common behavior of drinking or water without boiling are the risk factors of diarrheal diseases and all in a complex are making those households vulnerable to those diseases. Improper handling and storage of drinking water in the home is deteriorating water quality in households. Further research is needed to investigate an impact of water and sanitation to diarrheal diseases, considering other factors such as socio-economic status, food safety, hygiene behavior, individual susceptibility and etc. Also a research to access the effect of contamination level of drinking water to the diarrheal diseases and to cover other peri-urban areas of the country is needed. There is a need to improve the provision of water supply in peri-urban area by constructing new water distribution kiosks. Also pit-latrines should be constructed by the households with support of the local government. Health education for the households in peri-urban area on water safety, sanitation and personal hygiene is recommended. Introduction of point of use water quality monitoring should be taken in the surveillance of water supply and diarrheal diseases by health agencies and other relevant organizations concerning drinking water quality and human health.

〈教育報告〉

平成17年度専門課程Ⅰ
国際保健分野

Prevalence of Diarrhoea and Its Associated Factors Among Under Five-Year-Old Children in Kibaha District, Tanzania

Joyce LYIMO

Thesis Advisors: Tomoko KODAMA and Tomohiro MATSUDA

Introduction

Diarrhea is one of the principle causes of morbidity and mortality in Sub-Sahara Africa, especially among children, ranging from 1.3 to 76.8 deaths per 1,000 per year. The *Tanzania Demographic and Health Survey* reported that the under-five two-week prevalence of diarrhea was 14%, but it ranges with great difference according to the region and data source.

Objectives

To examine the magnitude of diarrhea and its associated factors among children under five years old in Kibaha District, Tanzania.

Design

A community-based cross sectional study.

Materials and methods

The study was conducted between February 11 and 15, 2005 in four villages of Kibaha District in Tanzania: Picha ya Ndege, Sofu, Boko Temboni, and Boko Timiza. The study subjects were 200 randomly sampled children under five years old in the study area and their mothers. The questionnaire was used by trained interviewers to collect the episode of diarrhea in the two weeks preceding the survey, and information about socio-demographic factors, child profile, water and food hygiene, personal hygiene habits such as hand washing, child defecation practices, garbage disposal practices, and mothers' perception and knowledge about diarrhea.

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　　　　　　　松田智大（疫学部）

Results

Twenty-five percent of the subjects experienced an episode of diarrhea during the study period. Four factors were significantly associated with diarrhea, such as boiling of drinking water （p＜0.001）, taking precautions before feeding the child （p＝0.02）, hand-washing habits （p＜0.001）, and allowing the child to defecate in the household compound （p＝0.001）. Furthermore, there was a tendency that the bigger the family size, the less likely it was to be in the habit of boiling water. The mother's age, marital status, and, major source of income were not significantly related to the occurrence of diarrhea but keeping livestock （30%） was observed to correlate with a higher prevalence than not keeping livestock （19%） （p＝0.07）.

Discussion

The prevalence of diarrhea found in the Kibaha District （25%） was higher than that revealed in the *Tanzanian Demographic and Health Survey* report （14%） but consistent with findings in other studies （26% in Kigoma, 35% in Mbeya, Tanzania）, and also the highest prevalence among 12-23-month-old children gave the same result as past studies. The factors related to diarrhea were also strongly related to hygiene habits. Interestingly, the likelihood of boiling drinking-water correlated inversely with the number of people in the household; this may reflect the higher quantity of fuel required to boil drinking-water for a large family, which may be unaffordable; thus alternative water-purification strategies may be necessary in the community.

Conclusion

Diarrhea prevalence among the under-fives in the

Kibaha District was almost consistent with other areas in Tanzania and the factors affecting its occurrence were highly associated with hygiene habits, not with the children's mothers' socio-demographic profiles. Therefore, a strategy to strengthen dissemination of a program emphasizing the importance of hygiene and to find alternative methods of water purification should be considered.

Sexual Risk Behavior and Related Factors Among College Students of Awassa, Ethiopia

Tigist G/Micheal

Keywords : Risky sexual behavior, Knowledge, College students, HIV/AIDS

Thesis Advisor: Nobuyoshi Watahiki

Introduction

Young people in Ethiopia are disproportionately affected by HIV/AIDS. Transmission is almost exclusively through heterosexual contact as many are engaged in risky sexual behavior. College students are at a considerable risk since they are usually between 18-25 years old and most of them are away from home and parental control for the first time.

Objective

The objective of this study was to assess the current level of knowledge of HIV/AIDS prevention, and its relation with risk-taking sexual behavior among college students of Awassa, Ethiopia.

Methods

The study was a descriptive cross-sectional. Data were collected from 229 single students of Awassa College of Health Sciences and Teachers Teaching College using a structured self-administered questionnaire.

Results

Fifty-eight percent of the respondents were male and 41.5% were female with the mean age of 20.3±1.5. Nearly two-thirds of the respondents identified limiting sex to one partner and abstinence as methods of HIV prevention, whereas 45% of the respondents mentioned condom use. Only 32.1% of the students mentioned all three main methods of HIV prevention. The students' knowledge of HIV prevention was not associated with the number of available sources of HIV/AIDS-related information. The majority (65.4%) of the respondents had a positive attitude towards condom use to prevent HIV, although 34.6% of the respondents disapproved or remained neutral about it.

Pertaining to behavior, 32.8% of the students had experienced sexual intercourse, among which 16% had concurrent multiple sexual partners. Nearly half (44%) of sexually active students had had more than one sex partner in their lifetime. The respondents who mentioned partner-reduction as one method of HIV prevention were less likely to engage in concurrent multiple partnerships. On the other hand, knowledge of partner-reduction and the number of lifetime sex partners was not related. Among the male students who were sexually active, 18.9% of them reported sex with a commercial sex worker. Regarding condom use, less than half (45.3%) of the sexually active students reported consistent use. Male condom users were more likely to use it consistently than female users. Respondents' perceived risk of contracting HIV was generally low.

Discussion and conclusion

College students' knowledge of HIV prevention was not comprehensive. Most of them were not aware of the personal risk of acquiring HIV. On top of this, some of them had a negative attitude towards condom use. All of this came despite the fact that they had accessed many media sources of information regarding HIV/AIDS prevention and had obtained information from the sporadic extracurricular HIV educations in colleges. Risky sexual behavior was observed among them. Knowledge of a prevention method in some cases was

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not related with adopting safer behavior. This is particularly apparent in the case of condom use.

Recommendation

Colleges should incorporate HIV prevention education to assure continuous and accurate information that considers the specific conditions of college students. Establishing youth-friendly preventive services such as condom distribution in schools would create a supportive environment and encourage adoption of safer sex. Further investigation of factors contributing to the discrepancy between knowledge and protective behavior would be useful to close the gap.

〈教育報告〉

平成17年度専門課程Ⅰ
国際保健分野

An Assessment of the Dental Caries Status of the 12-Year-Old School Children in the Division of La Union, Region I: Basis for Policy Recommendations

Artemio R. Licos, Jr.

Keywords : Decayed, Missing, Filled Teeth（DMFT）, schoolchildren, primary preventive services, knowledge, fluoride, La Union, Philippines

Thesis Advisor: Yuichi Ando

Objective

This study aimed to assess the dental caries status of 12-year-old schoolchildren in the Division of La Union, Region I, which in turn was the basis of policy recommendation for a more efficient delivery of dental healthcare of the said region.

Design

The study employed the descriptive cross-sectional design.

Materials and methods

This study was conducted in public high schools situated in three different geographical locations: coastal, plain, and mountainous. Data were gathered through clinical（oral examination）and questionnaire. Multi-stage sampling was utilized in the selection of public high schools. Two hundred fifty three（253）12-year-old schoolchildren in the first year level were the respondents. Since the researcher found it necessary to generate data relative to risk indicators for dental caries, a second set of questionnaires was administered; however, only 225 respondents were then available. Data were first coded and entered to Excel sheet, and then imported to Epi-Info 3.3.2 for analysis. DMFT was used to describe the prevalence of dental caries in an individual and it shows the number of caries-experienced teeth（D = decayed tooth, M = missing, F

指導教官：　　安藤雄一（口腔保健部）

= filled）. The lower the DMFT index scores, the better the dental health of the population. Data for the awareness of preventive agents and practices to make teeth healthy were analyzed by obtaining the frequency and percentage distribution. Cross-tabulation was conducted to determine the risk indicators of dental caries by using the chi-square test, Kruskall Wallis test, and Mann Whitney test, with the values of $p < 0.05$ taken as statistically significant. For identifying the main potential contributor to high DMFT values among the schoolchildren, multiple regression analysis was performed; this analysis strategy involved fitting the independent variables to the mean DMFT, but, before the analysis, correlations between independent variables were tested using the results of the chi-square test, the variables that with $p \leq 0.20$ were taken, and the others excluded from the multiple regression model.

Results

The dental caries status of the respondents was poor; this holds true in all the geographical areas where the study was conducted, evident in the mean DMFT of 253 and 225 respondents, which were 3.68（SD 3.12）and 3.76（SD 3.18）respectively. The study covered three geographical locations, six high schools, and seven classroom sections; out of 253 respondents, 159（62.85%）were females and 94（37.15%）were males. There were more respondents from the plain（125 or 49.4%）compared with mountainous（74 or 29.3%）and coastal （54 or 21.3%）areas. A very small percentage（45 or 17.8%）was caries-free and the mean DMFT was 3.68（SD 3.12）.

The D（decayed）component was shown to contribute most to the caries index（91.95%）and the F（filled）component formed the least（1.82%）; these results mean that most of the carious teeth examined were untreated. The DMFT score did not differ significantly in the three geographical areas（p＝0.06）. The 12-year-old schoolchildren in the coastal area exhibited the highest mean DMFT（4.59）; this level was high compared with the schoolchildren in the plain area（3.60）. The lowest mean DMFT value（3.16）was recorded among the schoolchildren in the mountainous area. The study also showed that the respondents were aware of preventive agents of dental diseases. Most of them brush their teeth twice or thrice after meals and gargle even more than three times after brushing. The study revealed further that dental health services and programs where the study was conducted were provided minimally or maybe even not at all. In the cross-tabulation among the variables in determining the high risk factors of dental caries by using the chi-square test, it was revealed that the association between DMFT experiences and the frequency of intake of sugary foods, knowledge of the causes of dental caries, attitude towards dentists, dental healthcare services and programs, provision of dental health education given by teachers, and advices from parents were not statistically significant. However, the association between DMFT experiences among sexes, geographical locations and dietary habits by taking breakfast daily were the only statistically significant. In multiple linear regression analysis, the association of independent variables to DMFT was found not to be significant, except for the sexes（p＝0.021）and the schoolchildren in the coastal areas, which was nearly statistically significant（0.051）. However, the adjusted R-squared value was very minimal（0.059）, it means that the variation of the dependent variable is explained by other unknown factors than those independent variables used in this analysis.

Conclusion

The following conclusions were drawn based on the results of the study:（i）the poor dental caries status of the respondents can be attributed to the interplay of various factors.（ii）Since there was no significant difference in the dental caries status of the respondents in the identified geographical location, the factor contributory to said status may all be present in all the identified geographical locations.（iii）The near-identical level of awareness of preventive agents of dental disease and the similarity in their practices may naturally result to the same status of dental health among them, regardless of geographical location.（iv）In as much as services and programs were minimally provided or may not even be provided at all, it is almost expected that this would yield the poor dental health status of the respondents.

Recommendations

The following plans for the delivery of dental healthcare are recommended. Primary preventive services must be given the priority: health promotion and specific protection. In the area of health promotion, there is an urgent need to:（i）implement more intensive classroom health lessons;（ii）advocate good oral hygiene practices such as brushing teeth twice a day after meals, spitting the toothpaste out, and rinsing out with water of not more than three gargles in order to enhance the efficacy of fluoride;（iii）involve and work directly with the schoolchildren. By its inclusion in the Child Initiative Program, schoolchildren will form a club and facilitate various activities in school. As for the specific prevention programs, the following are recommended:（i）the government should undertake salt fluoridation.（ii）There is also a need to increase the accessibility of fluoridated toothpaste and mouth-rinse diluted with fluoride solutions in all schools.

〈教育報告〉

平成17年度専門課程Ⅰ
国際保健分野

Descriptive Analysis of Maternal Health Activities in Northern Okinawa in the 1960's: Possibilities of Applying the Experiences to International Health

Yumiko Kitagawa

Objectives

The study's objectives are to describe and analyze Okinawa's experience with maternal health care in remote areas in the 1960s and their implications for strategies to improve maternal health care with limited human resources for health together with community involvement for safe deliveries.

Method

（1）Interviews were conducted in August 2005, to 5 ex-PHNs, etc. for both individuals and groups who had experiences to work in the three remote villages in Okinawa.（2）Statistical data were collected and old literatures written about Okinawa's maternal health activities were reviewed（3）Comparison of three village's maternal health activities using conceptual framework of Comprehensive Community-and Home-based Health Care Model（CCHBHC）in South-East Asia Region by WHO（SEARO）area.This framework consists of "IMPUT", "PROCESS", "OUTPUT", "OUTCOME".（4）Descriptive analysis using six factors by World Bank was conducted for both the study interviews and for the statistical indicators related to maternal health care in Okinawa and the less income countries by region, as comparison.

Result

There were different factors in each village. In Nakijin

-village and Izena-village, there were almost same factors were found except the factor of "Cooperation between PHN and MW". In Higashi-village　4 kinds of factors were founded clearly. It was considered that the factors ① High availabilities of SBA and ③ Free delivery cost were contribute to Higashi-village's high utilization of SBAs and other factors ④ Strong government policy, MCH activities, ⑤ Formalized referral links, ⑥ Providers accountable, ⑦ Cooperation between PHN and MW were also considered as some relation to utilization for SBAs. As for the factor ② High availability of birthing facilities, was not accepted in Okinawa's situation at that period.

Proportion of delivery with Skilled Birth Attendant in 1961 was as follows; Higashi-village100%, Nakijin-village 91.5%, Izena-village 71.4%. Improving the awareness of community members was not identified clearly in this study.

There were systematic PHN system such as recruitment, allocation, and continuous support for stationary PHN.

There was Okinawa's typical system called "Son Josanpu secchi seido" which aim at allocaing midwife where there was no midwife. The government contributes less than 70% of midwife's salary to employ a midwife in the village which had no midwife. This system started from 1960. In 1965, total of 6 midwives allocated where people never had and wished to have a midwife.

Higashi-village also faced to change the birth style from model 2 to model 3 between 1960 and 1970 same as Okinawa's total. In 1970 home delivery decrease nearly

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one third from 1960th.

Discussion & Conclusion

・ "High availabilities of SBA" and "Free delivery cost" were contributed to Higashi-village's high utilization of SBAs. "Strong government policy, MCH activities", "Formalized referral links", "Providers accountable" and "Cooperation between PHN and MW" were related to utilization for SBAs. "High availability of birthing facilities", was not accepted in Okinawa's situation at that period.

・Higashi-village, SBA; PHN who had MW license had high availability, people could easily access to her, and could provide antenatal care and attend a delivery with free cost because she was a public worker. Moreover she had a high motivation to improve maternal and children's health in her village.

・It was considered in Higashi-village, both high availability of skilled birth attendant and own preparation for emergency contributed to none maternal death rate.

・It was considered that Okinawa's systematic PHN resistant system strengthened PHC activities including maternal and child health care in Higashi-village with limited resources.

・Both system and community involvement were important to improve maternal and child health care in the community. And MW between community and government played an important role to improve maternal health.

・With respected to the change from model 1 to 2, it would be useful to give the midwife responsibility for caring community members rather than caring only pregnant women.

・After the model changed from model 2 to 3, it might be better to separate private midwife who can provide interpersonal qualitative care for mothers and children from community health development in a larger context.

・It is also important to make systematic referral system that the Midwife could provide safe reliable care to mothers and children in the community.

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Changes in Sexual Behavior and Knowledge in Relation to HIV Infection Among Adolescent Women and Men in Uganda: An Analysis of the Uganda Demographic and Health Surveys 1995 and 2000

Akiko Hayashi

Keywords : HIV/AIDS/STD, sexual behavior, knowledge, adolescent, Uganda, prevention

Thesis Advisors: Nobuyoshi Watahiki and Nobuyuki Hyoi

Objectives

To analyze changes in sexual behavior and its association with knowledge on heterosexual HIV transmission among sexually experienced adolescents aged between 15 and 24 in the late 1990s, with special focus on a comparative analysis between unmarried and married populations in Uganda.

Design

Descriptive and cross-sectional study

Materials and methods

Data of the *Uganda Demographic and Health Surveys* (DHS) conducted in 1995 and 2000 on a total of 5,754 (2,452 women and 522 men in 1995; 2,322 women and 458 men in 2000) nationally representative adolescents aged between 15 and 24 is analyzed using SPSS. The sample population is divided by sex, age brackets of five years, and marital status into eight groups.

Results

In the preceding year unmarried women and men had significantly more extramarital partners than married females and males in the same age brackets (p=0.000) with the exception of 15-19-year-old men in 1995. The proportion of unmarried women and men who had had their last intercourse with a non-regular partner was significantly larger than that of married women and

men of the same age (p=0.000-0.001). Unmarried women and men who used a condom during their last intercourse exceeded married women and men at a significant level (p=0.000-0.001).

From 1995 to 2000, the proportion of unmarried women and men who had extramarital partners increased at a significant level (p=0.000) with greater growth of one partner than two and more partners. In 2000, a significantly greater proportion of unmarried women and men had their last intercourse with a regular partner (p=0.000). Over the period of 1995-2000 the proportion of women who had used a condom during their last intercourse rose significantly (p=0.000-0.025) among all the groups of women except for the married aged 15-19. In 2000, there were more condom users among unmarried men (p=0.001-0.002).

Knowledge of the condom as an HIV-prevention measure has the strongest association with condom use among women of both age brackets at a significant level (p=0.000-0.014) in 1995 and 2000. As for men, correlation between condom knowledge and use exists among the married 20-24-year-olds (p=0.007) in 2000 and unmarried of both age brackets (p=0.002-0.014) in 1995. The larger proportion of those who identified having one partner as an HIV prevention method had a regular partner at the last intercourse (unmarried women of 15-19 (p=0.012) and unmarried men of 15-19 (p=0.007), both in 2000) and fewer extramarital partners (unmarried men of 15-19 (p=0.007) in 2000). Knowledge on limiting the number of partners to avoid HIV infection is related to an increase in maintaining a regular partner (unmarried women of 15-19 (p=0.003)

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and of 20-24 （p＝0.020）, both in 2000） and fewer extramarital partners （unmarried men of 20-24 （p＝0.003） in 2000）. Knowledge on abstinence and prostitute-avoidance had less association with sexual behavior among sexually experienced adolescents.

Discussion and conclusion

In comparison with married adolescent women and men, sexual behavior of unmarried adolescent females and males was of higher risk regarding partner type and extramarital sexual activity, but the risk may have been mitigated to some extent by condom use which was more prevalent among the unmarried population. Data relating to condom use, nonetheless, require some caution, because important information of how consistently and properly it was used was not included in the study. Given that the epidemic has long been in the generalized state in Uganda, married persons, particularly women, were not necessarily at a lower level of risk through relations with their spouse.

Over the period between 1995 and 2000, unmarried women and men intensified extramarital relationships, which may have led to higher risk of HIV infection. However, they substantially alleviated the risky sexual behavior by increasing one partner rather than two and over, shifting to a regular partner and enhancing condom use, possibly resulting in lower risk.

By 2000, unmarried women and men had changed their sexual behavior more greatly than their married counterparts, which is especially true to men. Comparing sexes, women registered a greater magnitude of behavior change than men. Findings suggest association between the sexual behavior and knowledge on HIV prevention to varying degrees according to type of knowledge. There are more associations among unmarried comparing by marital status and among women comparing by sexes. This may suggest that the unmarried population and women are more likely to change sexual behavior on the basis of knowledge obtained.

Since sexual behavior is influenced by the person's marital status, approaches designed specifically for target groups considering their characteristics need to be employed for HIV/AIDS/STD prevention interventions. The primary target should be unmarried sexually experienced adolescents who are prone to risky sexual behavior, and at the same time have more potential to change it on the basis of prevention knowledge. The married population, particularly women who are at higher risk through marital relations, needs special attention. In order to plan effective strategies of HIV prevention, it is crucial to study what factors contributed to the difference in level of association between knowledge and behavior, particularly to the fact that partner-related prevention knowledge less positively correlated with behavior than that on condom.

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Oral Health Status and Behavior of Primary Schoolchildren in Quezon city, the Philippines

Kaori Fukuzawa

Thesis Advisor: Yuichi Ando

Objective

The purpose of the study was to assess the oral health status and behavior among urban schoolchildren in the Philippines.

Design

A cross-sectional study.

Subjects and methods

The subjects were 473 children in grade 1 (aged 6 to 15 years) and 132 children in grade 6 (aged 11 to 17 years) in a state school in Quezon City, the Philippines. Oral health status and behavior were assessed collectively by oral examination and a questionnaire. The oral assessment followed the international methodological standards prescribed by the World Health Organization, and was performed to evaluate the amount of plaque, degree of gingivitis, and the extent of tooth decay measured using the DMFT and dft indices. The questionnaire was completed by the children in the presence of their class teachers, and used to assess oral behavior. Statistical analyses were performed to check whether there were differences in the DMFT and dft score between boys and girls, between the different classes (which reflect to an extent economic-social classes), between the parameters of oral behavior including experiences of toothache, between the amounts of plaque, and between the degrees of gingivitis. Multiple regression analysis and multiple logistic regression were performed as post hoc tests.

Results

The main findings were as follows: The mean caries indices were 8.97 dft and 0.44 DMFT for 6-7-year-olds (grade 1) and 0.83 dft and 3.69 DMFT for 11-12-year-olds (grade 6). About 90% of grade 6 children had experienced toothache, and half of the children had missed school due to toothache. The schoolchildren tended to eat more snacks in school than at home. More than half of the children had slight gingivitis and dental plaque. From the multiple regression analyses, the DMFT scores were higher in girls than in boys ($\beta=$ -0.248, P＜0.0001), in the low-ability classes than in the higher-ability classes in grade 1, and grade 6 children were in older children age ($\beta=0.247$, P＝0.004) and with plaque ($\beta=0.193$, P＝0.040). High odds of experience of toothache (OR) were associated with the combined DMFT and dft scores (Odd＝1.46, P＝0.048) and age (Odd＝0.53, P＝0.019) in grade 6.

Conclusions

The present study showed that the children are very much in need of dental treatment. The relationship between toothache from dental cavity and DMFT was considered. In addition, the older children tended to have more toothache because of serious decayed teeth. The children need dental treatment very much. It is necessary to establish an oral health program for an improved oral hygiene level; a fluoride mouth-rinse program is also necessary for schoolchildren with low caries prevalence in this primary school.

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Barriers to Compliance with the Daily Food Guide for Children Among First-Grade Pupils in a Rural Area in the Philippine Island of Mindanao

Emiko FUKUTA

Thesis advisors: Noriko KATO and Noriko SUDO

Objective

To identify and address caregivers' perceived barriers to compliance with dietary guidelines for children.

Design

Cross-sectional study.

Setting

Five barangays of New Corella, Mindanao Island, Philippines.

Subjects

Caregivers (70 mothers, four grandmothers, and one father) of first-grade children (39 boys and 36 girls).

Interventions

Information on family SES, child's consumption frequency of nine food items, and caregiver's attitudes and behaviors regarding meal preparation were collected through structured interviews with caregivers. If the child's intake did not reach the level recommended in the dietary guidelines, the reasons were investigated from the economic, social, cultural, and environmental viewpoints.

Results

Their diet relied heavily on rice and others. The percentages of children who did not consume each of the food items on a daily basis were 77.3% for eggs; 57.3% for milk, 41.3% for fish/meat/poultry/dried beans/nuts (FMPDBN); 42.7% for fruits; 17.4% for green, leafy, and yellow (GLY) vegetables; and 38.5% for other vegetables. The most reported reasons for the infrequent consumption of FMPDBN (87.1%), milk (81.4%), and eggs (36.2%) was "no money to buy," that of fruits (59.4%) was "out of season," and that of GLY (61.5%) and other vegetables (55.2%) was "child's dislike."

Conclusions

The expansion of homestead food production and the national feeding program contribute to increased animal food consumption. Nutrition education aimed at overcoming food preferences and increasing the awareness of micronutrient intake are perhaps the most effective means to promote vegetable intake.

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