

高血圧と急性心筋梗塞については財団法人日本医療機能評価機構医療情報サービス事業 Minds、脳卒中については日本脳卒中学会のウェブサイトからガイドライン構成項目に関する情報を収集した。

## C. 研究結果

高血圧は日本高血圧学会による「高血圧治療ガイドライン 2004」、脳卒中は脳卒中合同ガイドライン委員会（神経治療学会、脳卒中学会、脳神経外科学会、神経学会、リハビリテーション学会）による「脳卒中治療ガイドライン 2004」、急性心筋梗塞は平成 11 年度厚生科学研究費補助金（医療技術評価総合研究事業）急性心筋梗塞及びその他の虚血性心疾患の診療情報の整理に関する研究厚生科学研究班 による「急性心筋梗塞の診療エビデンス集 -EBM より作成したガイドライン-（2001）」 の構成項目に関する情報は次の通りである。

以下に各ガイドラインお構成項目を示す。地域を基盤とした疫学研究の成果が引用されているところに下線で明示した。

## 高血圧治療ガイドライン 2004

### 第 1 章 高血圧の疫学

- 1) 国民の血圧水準の推移
- 2) 高血圧と心血管病の発症および予後
  - a 高血圧による脳卒中の多発
  - b 高血圧による心疾患の発症
  - c 脳卒中・心疾患患者の予後
- 3) 日本人の高血圧の特徴
  - a 多い食塩摂取量
  - b 肥満度の推移
  - c 高血圧未治療者および管理不十分の問題
- 4) 公衆衛生上の高血圧対策

まとめ

### 第 2 章 血圧測定と臨床評価

#### 1) 血圧測定

- a 診察室、外来血圧測定
- b 家庭血圧測定
- c 24 時間自由行動下血圧測定
- d 家庭血圧・ABPM で得られる情報

## 2) 血圧値の分類と危険因子の評価

- a 血圧値の分類
- b 心血管病の危険因子
- c 予後評価のためのリスクの層別化
- d 高血圧の病型分類

## 3) 検査と診断

- a 病歴
- b 診察（身体所見）
- c 臨床検査
- d 高血圧性臓器障害の診断

## 4) 初診時の高血圧管理計画

まとめ

## 第3章 治療の基本方針

### 1) 治療の目的

### 2) 治療対象と降圧目標

- a 治療対象
- b 降圧目標

### 3) 治療法の選択

- a 生活習慣の修正
- b 降圧薬の開始時期
- c 降圧薬治療

### 4) その他の留意事項

- a 初期治療
- b 長期治療（継続治療）
- c QOL への配慮

まとめ

## 第4章 生活習慣の修正

### 1) 食塩制限（減塩）

### 2) 野菜・果物の積極的摂取およびコレステロール・飽和脂肪酸の摂取制限

### 3) 適正体重の維持（減量）

### 4) 運動療法

### 5) アルコール制限（節酒）

### 6) 禁煙

### 7) その他の日常生活の注意事項

### 8) 生活習慣の複合的な修正

まとめ

## 第5章 降圧薬治療

### 1) 降圧薬選択の基本

- a 個々の患者に適した降圧薬の選択
- b 降圧薬の使い方
- c 薬物相互作用
- d 降圧薬の減量と中止

### 2) 各種降圧薬の特徴と主な副作用

- a Ca拮抗薬
- b ARB
- c ACE阻害薬
- d 利尿薬
- e  $\beta$ 遮断薬 (含  $\alpha\beta$ 遮断薬)
- f  $\alpha$ 遮断薬
- g その他の交感神経抑制薬—中枢性および末梢性交感神経抑制薬
- h 古典的な血管拡張薬

### 3) 特定保健用食品

まとめ

## 第6章 臓器障害を合併する高血圧

### 1) 脳血管障害

- a 急性期
- b 慢性期
- c 無症候期

### 2) 心疾患

- a 虚血性心疾患
- b 降圧薬を用いた心不全治療
- c 心肥大

### 3) 腎疾患

- a 腎機能と血圧
- b 慢性腎疾患と心血管疾患
- c 生活習慣の修正
- d 降圧薬治療
- e 透析患者

### 4) 血管疾患

- a 大動脈瘤
- b 動脈硬化性末梢動脈閉塞症

まとめ

## 第7章 他疾患を合併する高血圧

- 1) 糖尿病
- 2) 高脂血症
- 3) 肥満
- 4) メタボリックシンドローム
- 5) 気管支喘息および慢性閉塞性肺疾患
- 6) 痛風・高尿酸血症
- 7) 肝疾患

まとめ

## 第8章 高齢者高血圧

- 1) 高齢者高血圧の特徴
- 2) 高齢者高血圧の基準と診断
- 3) 治療
  - a 高齢者高血圧の治療効果
  - b 降圧薬治療の対象と降圧目標
  - c 生活習慣の修正
  - d 降圧薬の選択

まとめ

## 第9章 特殊条件下高血圧

- 1) 難治性高血圧
  - a 定義と頻度
  - b 原因と対策
- 2) 高血圧緊急症および切迫症
  - a 定義と分類
  - b 治療の原則
  - c 高血圧性脳症
  - d 脳血管障害
  - e 急性左心不全および肺水腫
  - f 急性冠症候群、急性心筋梗塞、不安定狭心症に重症高血圧が合併
  - g 褐色細胞腫クリーゼ
  - h 加速型高血圧－悪性高血圧
  - i 高血圧緊急症以外の血圧上昇
- 3) 外科手術前後の血圧管理
- 4) 女性の高血圧
  - a 妊娠に関連した高血圧
  - b 経口避妊薬・エストロゲン補充療法に関連した高血圧
  - c 更年期に関連した高血圧

まとめ

## 第10章 小児の高血圧

- 1) 小児および高校生の高血圧の特徴
  - 2) 小児の血圧測定と高血圧判定基準
  - 3) 小児・高校生における本態性高血圧の問題点
  - 4) 小児期における生活習慣の修正（高血圧の一次予防）
    - a 食事療法
    - b 運動療法
  - 5) 高血圧の管理
  - 6) 降圧薬治療
- まとめ

## 第11章 二次性高血圧

- 1) 腎実質性高血圧
- 2) 腎血管性高血圧
  - a 診断の手がかり
  - b 確定診断のための検査
  - c 治療
- 3) 内分泌性高血圧
  - a 原発性アルドステロン症とその類似疾患
  - b クッシング症候群
  - c 褐色細胞腫
  - d 甲状腺疾患
  - e 副甲状腺機能亢進症（原発性）
  - f 先端肥大症
- 4) 血管性（脈管性）高血圧
- 5) 脳・中枢神経系疾患による高血圧
- 6) 薬剤誘発性高血圧
  - a 非ステロイド性抗炎症薬（NSAIDs）
  - b 甘草（グリチルリチン）
  - c 糖質コルチコイド
  - d シクロスポリン
  - e エリスロポエチン
  - f 交感神経刺激作用を有する薬物
  - g その他

まとめ

文献

主要高血圧治療薬一覧

## 脳卒中治療ガイドライン 2004

### I. 脳卒中一般

#### 概 説

#### 1. 脳卒中一般の管理

##### 1-1. 超急性期の呼吸・循環・代謝管理

- (1) 呼吸
- (2) 血圧
- (3) 栄養
- (4) 抗脳浮腫療法

##### 1-2. 合併症対策

- (1) 合併症一般（特に感染症）
- (2) 消化管出血
- (3) 発熱

##### 1-3. 対症療法

- (1) 痙攣
- (2) 嚥下障害
- (3) 頭痛

#### 2. Stroke Care Unit (SCU) または Stroke Unit (SU)

#### 3. 脳卒中一般の発症予防

##### 3-1. 脳卒中一般の危険因子の管理

- (1) 高血圧
- (2) 糖尿病
- (3) 高脂血症
- (4) 心房細動
- (5) 喫煙
- (6) 飲酒

##### 3-2. 脳卒中ハイリスク群の管理

- (1) 無症候性脳梗塞
- (2) 無症候性頸動脈狭窄

## 急性心筋梗塞 2001

### 急性心筋梗塞の診断・治療の指針

発症早期の心筋梗塞診断

冠動脈造影

血栓溶解療法

Primary PTCA/STENT

緊急の外科的処置 (CABG)

抗不整脈薬、不整脈対策

急性期の薬物療法

### 発症早期の心筋梗塞診断

急性心筋梗塞診断の指針

- 1 臨床症状
- 2 心電図による診断
- 3 血清マーカーによる診断
- 4 その他の血清マーカー

### 入院までの初期治療

入院前初期治療の指針

救急部における初期の認識と管理の指針

- 1 入院前の処置
- 2 入院後の初期一般治療

### 冠動脈造影

ST 上昇を伴う例で Primary PTCA を実施する意図のもとに行う緊急冠動脈造影の指針

ST 上昇を伴う例の緊急冠動脈造影 (Primary PTCA を意図しない場合) 施行の指針

- 1 心筋梗塞の診断と冠動脈病変の重症度評価
- 2 急性期病態の理解と再疎通療法の選択
- 3 血栓溶解療法後の効果の評価
- 4 緊急冠動脈造影の不利益

ST 上昇を伴わない症例における緊急冠動脈造影の指針

退院までの冠動脈造影の指針

### 血栓溶解療法

I. 血栓溶解療法の禁忌がない症例

II. 血栓溶解療法の絶対的・相対的禁忌

Primary PTCA/STENT

Primary PTCA/STENT の指針

- 1 Primary PTCA/STENT と血栓溶解療法の比較

## 2 Primary PTCA/STENT の問題点

### 緊急の外科的処置 (CABG)

急性心筋梗塞急性期の緊急冠状動脈バイパス手術の指針

### 抗不整脈薬、不整脈対策

心室頻拍・心室細動治療の指針

心房細動治療の指針

アトロピン適応の指針

経皮的パッチと active (demand) 経皮的ペーシング (一時的)

経静脈的一時ペーシング適応の指針

永久ペーシング適応の指針

### 急性期の薬物療法

カテコラミンの使用指針

急性期の硝酸薬の使用指針

$\beta$  遮断薬使用の指針

ACE 阻害薬使用の指針

カルシウム拮抗薬使用の指針

アンジオテンシン II 受容体拮抗薬使用の指針

抗血小板薬 (アスピリン) の使用指針

ヘパリンの使用指針

他の抗凝固薬の使用指針

1 血栓溶解療法

2 経皮的冠動脈形成術

### IABP、PCPS

IABP 適応の指針

PCPS 適応の指針

### 参考文献

検討した 3 診療ガイドラインは、いずれも検索された文献を引用し、それに基づいて推奨を決定していた。しかし明確化された clinical question に応じて系統的な文献検索を行ったという記載はなく、文献検索に用いたキーワードや文献選択のプロセスについて実状は不明であった。高血圧、脳卒中のガイドラインには地域を基盤とした疫学研究成果の引用が複数の項目で見られた。急性心筋梗塞のガイドラインでは、予防に関する章立てが無く、関連する疫学研究成果の引用は無かった。

## D. 考察

循環器領域における 3 診療ガイドラインを対象に、地域を基盤とした疫学研究成果の成



果の引用状況について検討を行った。

検討した診療ガイドラインのうち、高血圧と脳卒中では疫学的な項目が立てられており、関連の疫学研究が引用されていたが、文献検索・選択の実際のプロセスが不明であり、採用文献の偏りや恣意的な選択の可能性が残っていると言える。

臨床医学と公衆衛生が協調して生活習慣病対策を進めていくためには、地域住民を対象としたコホート研究の成果を、診療ガイドラインに適切に反映していくことが大きな意義を持つ。大規模な統合コホートの構築により、詳細なサブグループごとに妥当性の高い絶対リスクが得られるようになれば、循環器疾患を中心とする診療ガイドラインに大きく寄与するエビデンスが提示できることが期待される。

今回の検討でも財団法人日本医療機能評価機構の「医療情報サービス事業」、通称・”Minds” (Medical Information Network Distribution Service)の機能を活用したが、同サイトは臨床家を中心とする診療ガイドライン関係者の間で重要なプラットフォームとして認識が高まりつつある。Mindsは国内で作成された根拠に基づく診療ガイドラインを中心とした情報センターとして発展しつつある。提供される情報としては医療者向けの診療ガイドラインに加え、その領域の専門家による解説、診療ガイドラインに基づく一般向けの解説情報、コクラン共同計画によるシステマティック・レビューの抄録の翻訳、そして海外の重要論文の構造化抄録形式での提供などがある。臨床家、そして社会一般への疫学研究に対する認知を高めるために、国内疫学論文の構造化抄録による提供など、本班を中心に疫学とMindsの連携を進めることは検討の価値があることと思われる。

## E. 結論

国内の循環器領域の診療ガイドラインにおける疫学的な項目の有無、疫学研究の引用状況について検討を行った。EBMの基盤としての疫学研究の充実・発展に加えて、Mindsなど整備されつつある情報インフラとの連携を通じて、疫学研究の成果の診療ガイドラインへの展開を進めていく必要があると考えられる。

## F. 健康危険情報

なし

## G. 研究発表

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## Young Investigator Award Winner's Special Article

# Evidence-based Healthcare and Health Informatics: Derivations and Extension of Epidemiology

Takeo Nakayama.<sup>1</sup>

Epidemiology provides extremely valid information and evidence regarding human health. Epidemiologic findings with regard to major illnesses must be amassed, enhanced, and expanded further into related areas as a foundation for evidence-based medicine that is based on clinical practice, as well as for evidence-based healthcare that includes public health-related issues. Epidemiology should be recognized not only by epidemiologists but also by a variety of people, including specialists in other areas for healthcare and medicine, people in law and media, policy makers, and the general public. A system is needed that can create information for facilitating appropriate decision-making with issues related to clinical medicine and public health. The principles and methodology of epidemiology are used as a base for developing a field of health informatics. The objective of health informatics is to establish a system for facilitating the flow and circulation of health and medical information. Health informatics has potential applications for the creation, communication, and use of information, and the discipline is being expanded as a practical applied science in search of solutions. This report represents an effort to expand the scope of health informatics and extend the applications of epidemiology by working with individuals in other disciplines and the public.

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Key words: Information Management, Evidence-Based Medicine, Communication, accountability, Decision Making.

The word "information," which is very common, is defined in *The American Heritage Dictionary* as "the act of informing or condition of being informed; communication or reception of knowledge; knowledge derived from study, experience, or instruction; facts." In addition, Claude Shannon, a mathematician and developer of digital theory, defined information as "that which decreases uncertainty"<sup>1</sup> in decision-making, and Gregory Bateson, a cultural anthropologist, described it as "any difference that makes a difference."<sup>2</sup> The objective of health informatics is to provide information that will empower people to solve problems by applying health informatics in combination with evidence-based healthcare that comes from epidemiologic research.

### *Epidemiologic Research: Promotion of Collaborative Studies and the Development of a System for Research Ethics Review*

In the beginning of research career, the author studied the risk factors of cardiovascular disease using cohort studies based on community.<sup>3-5</sup> Relationships have been noted between physical inactivity and cerebral hemorrhage in women and heavy labor and cerebral infarction as well as smoking and all types of stroke in men. As a result of participating in an international prospective collaborative study, contributions were made toward the consolidation of epidemiologic information on cardiovascular disease.<sup>6,7</sup> In addition, by focusing on the attributable risk as an index to link epidemiologic causality with policymaking significance,<sup>8,9</sup> the attributable fraction of stroke incidence in middle age people was reported to be 15% with smoking, 4% with uncontrolled hypertension, and 14% with untreated hypertension.<sup>10</sup>

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Takeo Nakayama, MD, PhD won the Young Investigator Award of the Japan Epidemiological Association in 2004. The summary of this paper was presented at the 15th Annual Scientific Meeting of the Association in Otsu, Japan on January 22, 2005.

<sup>1</sup> Department of Health Informatics, Kyoto University School of Public Health.

Address for correspondence: Takeo Nakayama, MD, PhD, Department of Health Informatics, Kyoto University School of Public Health, Yoshida-Konoe, Sakyo-ku, City of Kyoto, Kyoto 606-8501, Japan. (e-mail: nakayama@pbh.med.kyoto-u.ac.jp)

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In collaborative studies with clinicians, the biochemical marker Ki-67 was identified for use in the prognosis of cerebral carcinoma independently of pathological staging.<sup>11</sup> In another study, spacers were observed to protect against mandibular complications in low-dose brachytherapy for oral tongue carcinoma.<sup>12</sup> An epidemiologic study was also conducted on the quality of life (QOL) in patients with severe myopia<sup>13</sup> and on the relationship between labor stress and depression/suicide.<sup>14,15</sup> The latter report, a collaboration with psychiatrists on a case series of suicide attributed to overwork<sup>15</sup> was the first detailed descriptive study of its type regarding this phenomenon, which is unique to Japan. Currently, the author is leading a multi-center collaborative study on QOL following acute myocardial infarction under a grant-in-aid by the Ministry of Education, Culture, Sports, Science and Technology of Japan.

Prior to the increase in concerns about research ethical guidelines, the author assessed the degree of understanding on research participation with a survey intended for the general population.<sup>16</sup> The author was also involved in a working group that was supported by a grant-in-aid from the Ministry of Health and Welfare (MHW) (currently, the Ministry of Health, Labour and Welfare (MHLW); principal investigator: Akiko Tamakoshi) to investigate the ethics of epidemiologic research. The same working group drafted guidelines governing the informed consent of study participants in epidemiologic research in 2000.<sup>17, 18</sup> At the same time, under the guidance of the author as a principal investigator, the MHW working group was assessing epidemiologic research to determine any potential contributions to health policy. This group proposed the future modality of epidemiologic research and the verification of its meaning from the perspective of social accountability (Table 1).<sup>19</sup>

At the present time, the author is a member of the institutional review boards of the following organizations: the Japan Epidemiological Association (the western Japan division), the Translational Research Institute of the Foundation for Biomedical Research and Innovation, the NPO (non-profit organization) Institute for Health Outcomes & Process Evaluation Research, and the Subcommittee of Epidemiologic and Clinical Research, Institutional Review Board of Kyoto University School of Medicine.

### *Toward Evidence-based Medicine and Healthcare*

The concept of evidence-based medicine (EBM) was developed and proposed by Guyatt<sup>20</sup> in 1991 and has been used in clinical medicine and by public health organizations as a result of the revolutionary advances in information technology such as the Internet and databases (Figure 1).<sup>21</sup> Furthermore, Gray<sup>22</sup> advocated the use of evidence-based healthcare as an expansion of EBM by noting that the science that is the most relevant to healthcare decision-making is epidemiology, which is the study of disease in groups of patients and populations.

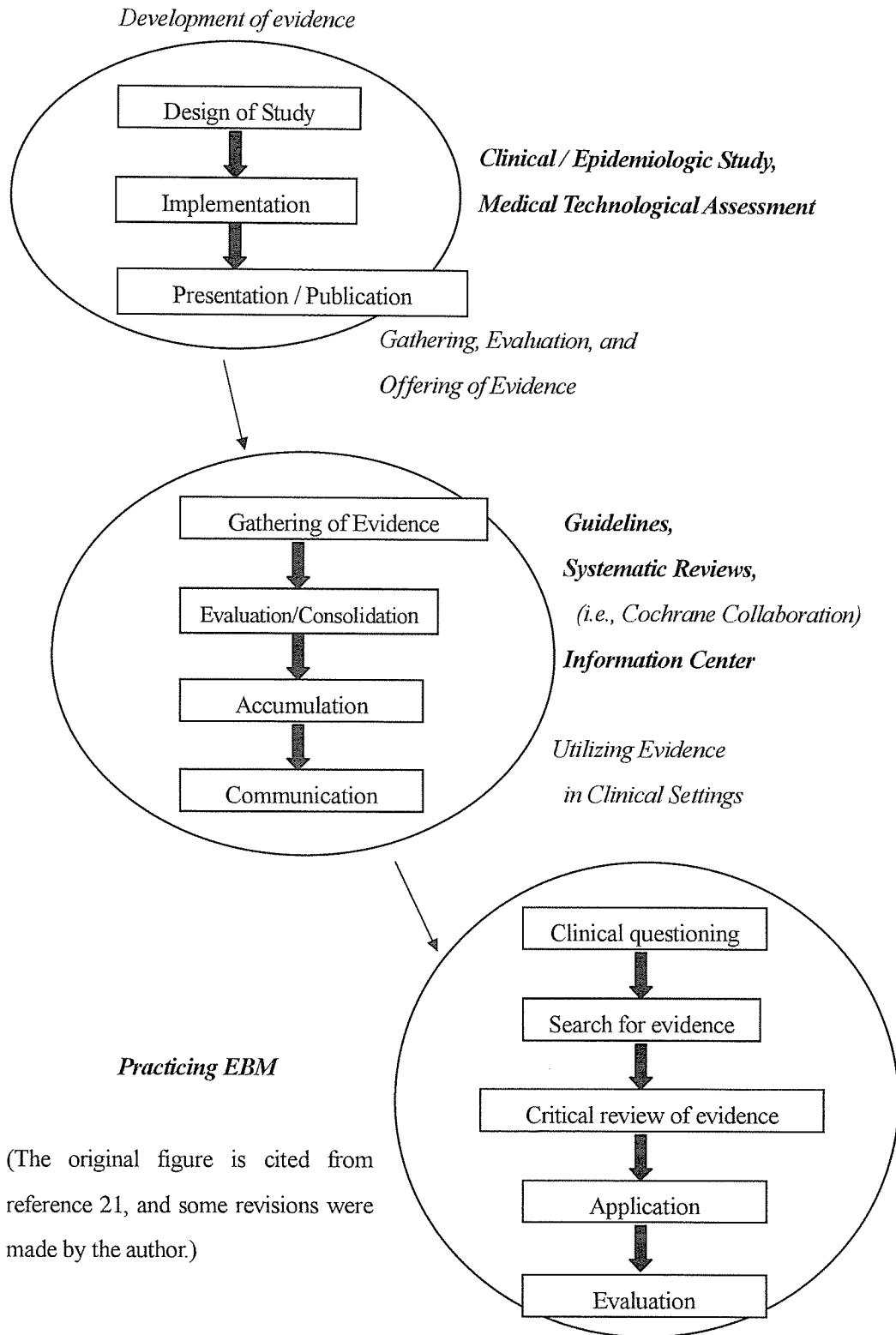
To renew and integrate information in healthcare matters, guidelines play an important role in clinical practice and in public health settings. The US Institute of Medicine states that "clinical practice guidelines are systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances." Related to the ever-increasing interest in "evidence-based clinical practice guidelines" in Japan, which initially began with those developed by the MHLW,<sup>23,24</sup> epidemiologists who are knowledgeable about research design and information quality are eagerly expected to participate in the developmental process.<sup>25,26</sup> The author has been involved in several projects in which guidelines were developed. They include an MHLW research group for rheumatoid arthritis,<sup>27</sup> focal treatment of pressure ulcers (the Japanese Society of Pressure Ulcers),<sup>28</sup> acute otitis media (Otolological Society of Japan), management of dysphagia (the Oto-rhino-laryngological Society of Japan), smoking cessation (MHLW Research Project), and cancer screening (MHLW Cancer Research Project).<sup>29</sup> The author has also examined the guidelines for domestic violence during the perinatal period (St Luke's University Project of the Center of Excellence)<sup>30</sup> as an external reviewer. Currently, the author is working collaboratively to evaluate the influence of clinical practice guidelines with the Japan Rheumatism Foundation, the Japanese Society of Neurology, the Japanese Orthopedic Association, and the Liver Cancer Study Group of Japan.

The author has also been working as the principal investigator of the following MHLW working groups in the field of EBM and practice guidelines: "A study on the acceptability and developmental methodology of 'structured abstracts' to be used for medical databases and EBM-oriented 'Clinical Practice Guidelines

**Table 1.** Epidemiology in the 21st Century: A proposal of requirements

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- 1 To comply with relevant laws and guidelines, including personal information protection
  - 2 To conduct research in close collaboration with society
  - 3 To utilize information adequately
  - 4 To provide results that meet the expectation of society and foster trust
  - 5 To responsibly conduct epidemiology research
  - 6 To present findings to the public
- 

These requisites were proposed by a working group of the Ministry of Health and Welfare; their project is titled "Assessment of Epidemiologic Research in Terms of Contributions to Health Policy." (April 2000) (in Japanese)



(The original figure is cited from reference 21, and some revisions were made by the author.)

**Figure 1.** The Process of Evidence-based Medicine (EBM).

(2001-2003)<sup>31,32</sup> and "A study on the infrastructure development for the appropriate development, use, and distribution of 'Evidence-based Guidelines (2004-).'" Much attention has been given to the role of clinical practice guidelines as a tool to promote communication and share information among patients, care givers, and health professionals, including clinicians. Although patient participation in the development stage of clinical practice guidelines is necessary to achieve this purpose, these attempts have been very rare in Japan. The author assisted the NPO "Allergypot," a support organization for asthmatic and allergic children, which was collaborating with the MHLW working group in the development of clinical practice guidelines for asthma. As a result, efforts to formulate clinical practice guidelines for the general public regarding the treatment of asthma were successful.

The development of evidence-based clinical practice guidelines requires more than works within a professional society, which review clinical evidence scientifically and make recommendations in terms of clinicians. The sharing and integration of information that comes from a consensus among stakeholders including patients and a transparent process is indispensable. It is necessary to improve these methodologies. Furthermore, collaboration among medical professionals and lay people is expected to contribute to shared knowledge and have an influence on medical resources and user demands.<sup>34</sup> Individuals employed by mass media are invited to participate in official meetings of some groups working on our project on evidence-based clinical practice guidelines and to make presentations in the course of open forums. It is important to exchange ideas and share experiences between health professions and individuals with mass media. The project described in this paper has been sometimes covered by the mass media (Table 2).

The maintenance of a database is essential, and, as a working and committee member, the author has contributed to the improvement of domestic databases for medical information. First, the Japan Council for Quality Health Care launched the Medical Information Network Distribution Service (*Minds*) in 2002.<sup>35</sup> *Minds* was designed to serve as a clearinghouse of clinical practice guidelines developed in Japan. It provides users with useful clinical information from recent articles, and its contents are accessible to anyone, including laypeople. Second, the Igaku-Chuo-Zasshi (*Ichushi*) Web provided by the Japan Medical Abstract Society (Japana Centra Revuo Medicina), the most long-standing domestic database for medical literature, began a new tagging system in terms of research design and clinical practice

guidelines in 2003.

The abuse and misuse of impact factors in the evaluation of academic information has become an international problem. Impact factors include mere citations of reports published in journals without a qualitative evaluation of each quotation. On the other hand, evidence-based clinical practice guidelines identify important clinical and public health problems and review articles after having searched and evaluated to determine the usefulness to decision-making. Accordingly, journals and academic information can be evaluated by using a citation analysis of evidence-based guidelines, and the results of such an evaluation would differ from those obtained from impact factors and common citation analyses. A citation analysis of recent guidelines accessible online via the United States *Guide to Clinical Preventive Services (3rd Edition)* produced only a weak correlation between the number of quotations in the guidelines and the ranking by impact factor for academic journals.<sup>32</sup> The contribution to problem solving and decision making in terms of EBM was found to be different from that obtained in a conventional evaluation using impact factors in preventive medicine and epidemiologic research (or journals). To promote clinical or epidemiologic studies that are relevant for decision-making, an alternative system for evaluating the academic output in these fields needs to be established. Within the MHLW working group on clinical practice guidelines noted above, the author began a project in 2005 with *Thomson Scientific*, which compiles and issues the science citation index and the impact factors, to examine which articles and which journals are cited in evidence-based clinical practice guidelines in each subject. The results will provide a new perspective on citation analysis and, furthermore, an assessment of the productivity of academic and clinical investigators or epidemiologists in terms of evidence-based concepts.

#### *Developing a New Field: Health Informatics*

Health informatics is a new field that seeks to verify the quality of information related to health and medicine and promote communication among stakeholders. The use and impact of health informatics on behavior and health outcomes and the modality of information used to support human health, health behavior, decision-making, and problem-solving are challenging subjects to be investigated. This approach is based on clinical medicine, public health, informatics, and behavioral sciences, and, especially, on epidemiology and EBM. Health informatics is derived from epidemiology and has potential as a new academic discipline for the promotion of evidence-based healthcare.

**Table 2.** Mass media reporting of the project on evidence-based clinical practice guidelines (2003-5).

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1	"Standard treatment, easy to understand for patients," Nihon Keizai Shimbun (April 28, 2003)
2	"Patient participation in developing clinical practice guidelines for the treatment of asthma," Asahi Shimbun (June 13, 2004)"
3	"Q & A: What are clinical practice guidelines?" Yomiuri Shimbun (January 25, 2005)
4	"EBM clinical practice guidelines," Yomiuri Shimbun (September 21, 2005)

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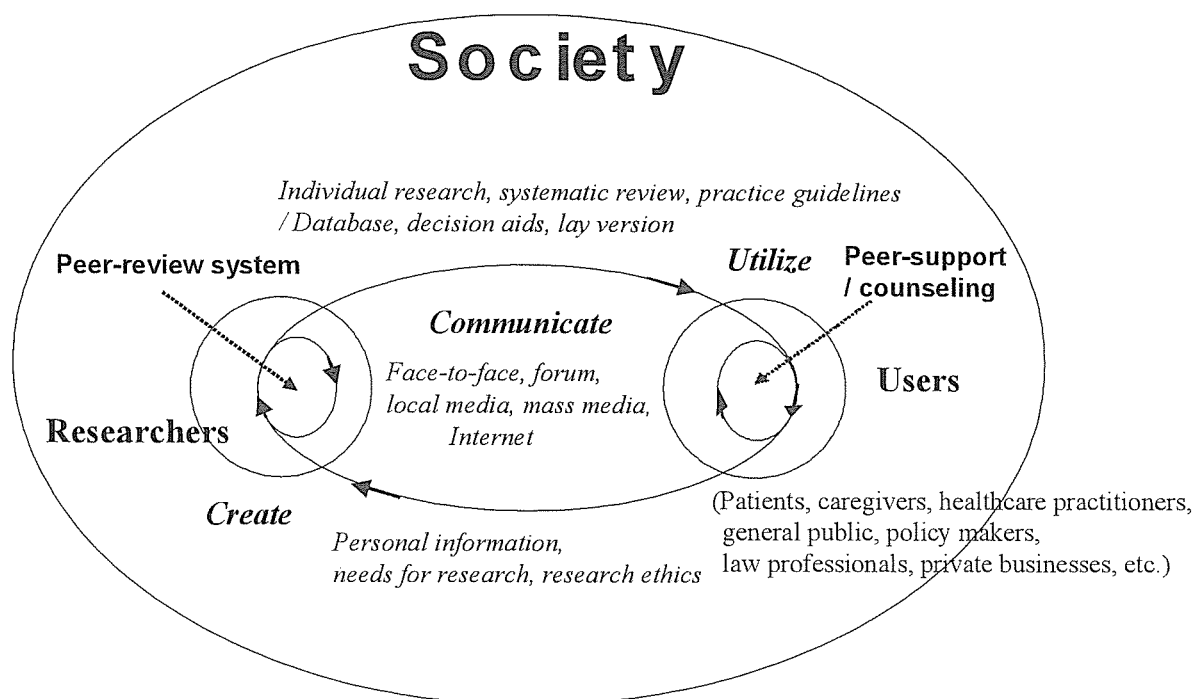


Figure 2. Flow and circulation of health and medical information in society.

Figure 2 describes the concept of expanding the idea of EBM to the flow and circulation of medical and health information in society. It is primarily the researcher who develops information related to health and medical subjects. Users of health and medical information include, but are not limited to, healthcare practitioners, patients and caregivers, the general public, policy-makers, and private individuals in business and law. Generally, researchers do not present their findings with the intention that they will be read by people outside of their own specialist community. Researchers primarily focus on peer review in academic journals, a system whereby colleagues from the same field assess the results of the presenter's research.

Information that is intended for peer review would be difficult for laypeople to understand. Research is currently communicated by face-to-face communication, the local media, open lectures, and forums, as well as by the mass media, including research written for laypeople, and the Internet. Some advanced research groups have appointed publicists to their research projects.<sup>36</sup> Appropriate communication of research findings and methodology to the general public requires accurate reporting.

In addition to the efforts made by individual researchers to communicate their own research, it is necessary to develop human resources that can transmit information accurately between researchers and the general public in Japan. Such professionals are called "medical writers" or "health communicators." Epidemiologists are sometimes responsible for the training of professional communicators. At a symposium sponsored by the Japan Medical and Scientific Communicators Association

(JMCA) in November 2004, the author gave the keynote lecture on the problems of medical information and medical communicators in health communications.<sup>37</sup> The author is currently working to enhance the value of health informatics by collaborating with professional managers of health communications and by establishing relationships with mass media communicators.

In Japan, researchers are generally passive with regard to the mass media, and, as a result, the quality of information in the mass media is largely dependent on the knowledge of the journalist or reporter. Therefore, it would be valuable to assess the quality of news reports of research findings published in the mass media from the viewpoint of researchers. For example, "The Media Doctor," a program introduced in 2004 at New Castle University, Australia, assesses the quality of newspaper articles on medical technology.<sup>38</sup> Such an attempt may facilitate the appropriate flow of valid information in the mass media. Epidemiologists can watch the quality of information related health or disease risk released in mass media and make some proposals to improve them.

The next step for public health researchers is that active transmission of professional messages to the general public through the mass media, a process that is known as "media advocacy." This approach is gaining significant interest in Europe and the United States.<sup>39</sup> The Media Advocacy Manual developed by the American Public Health Association (APHA) states the following: "Advocacy is used to promote an issue in order to influence policy makers and encourage social change. Advocacy in public health plays a role in educating the public, swaying public opin-

ion or influencing policy makers.<sup>40</sup> It may be the time to consider the importance and possibilities of such an attempt in Japan. Any advocacy should only be based on sound evidence.

Integrating and processing original information is an important part of communicating information effectively. This process includes clinical practice guidelines, systematic reviews, and furthermore, a decision aid or decision support tool.<sup>41</sup> One of the studies undertaken by the MHLW working group is U-CARE (Unruptured Cerebral Aneurysm study for better Risk communication and Evidence-based decision making). The author is now promoting a collaborative project to develop an interactive decision aid for people who have been diagnosed with unruptured cerebral aneurysms.<sup>42</sup> This project, called U-SHARE (Ubiquitously Support and Heal, Aneurysmal patients with Risk Communication and Empowerment), comprises the data of large-scale domestic and foreign epidemiologic studies, qualitative analysis of patient needs and concerns by semi-structured interview and decision analysis obtained with the use of the Markov model, and an interactive interface obtained through information technology.

The Japanese government reported that 63% of the general population of Japan was using the Internet at the end of 2004.<sup>43</sup> Several problems are associated with placing information on the Internet. Information can be easily posted and accessed on the Internet, which makes the quality of such information questionable. The abundance of information available on the Internet is sometimes an impediment to accurate decision-making. Therefore, tools for rating quality of health information on the internet are required.<sup>44</sup> In the United States, the American Medical Association (AMA) proposed guidelines for medical and health information sites on the Internet in 2000.<sup>45</sup> The AMA guidelines served as an inspiration to develop an e-Health Ethics Code to be published by the NPO Japan Internet Medical Association (JIMA: <http://www.jima.or.jp/>), in which the author has been involved. This code covers content, communication, care, commerce, and privacy, and the objective is to support Website developers who are responsible for posting and receiving information on the Internet. This project provides insight into how to evaluate the quality of Internet information. As of November 2005, 13 hospitals and clinics had been authorized to participate in this project.

Peer counseling and support for information users are receiving more interest from health professionals and the general public. Internet developments, such as mailing lists and message boards, are having a positive impact on this movement. Furthermore, social networking sites (SNS), which are community Websites that begin with individuals with common interests, are expanding rapidly. Any information disseminated through these Internet functions may be beyond the control of any authority; as a result, the information could be biased or plainly wrong. Healthcare research has the objective of disseminating accurate information and evidence to aid individuals make proper decisions with regard to their health.

Nowadays, ethics and scientific integrity are extremely important relative to research. Ethical guidelines governing research and the protection of privacy are applicable to epidemiologists and all research scientists in the medical and healthcare professions. Researchers are also accountable for their research to society, e.g., for explaining the purposes, methods, and importance of their research to lay people in an understandable manner. In Japan, after the Act on the Protection of Personal Information was put in effect in April 2005, over-reaction and rigid compliance to this law were sometimes observed. The over-protection of personal information is sometimes criticized as an impediment to sharing information and communication. Solving these conflicts among the issues of privacy and the need to access information will be critical in the field of health informatics.

In Japan, there are several impediments to the flow and circulation of information in the fields of public health and medicine. Assessing this problem from the standpoints of creation, communication, and utilization will help to clarify each impediment to be solved. Epidemiology, which provides valid scientific evidence related to human health and health assessment, plays a crucial role in the promotion of evidence-based healthcare and the development of health informatics. It is important not only for specialists but also for the general public to acknowledge the concepts and methodologies of epidemiology. This shared understanding will further foster a system of information to facilitate appropriate decision-making that can be mutually shared among stakeholders.

The author hopes that new efforts to extend epidemiology through collaboration with individuals in other disciplines should be continued.

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**Conflict of interest:** The author, Takeo Nakayama, is the recipient of private grants-in-aid from several organizations, serving as the principal investigator for projects described in this article. They include the Ministry of Health, Labour and Welfare; Ministry of Education, Culture, Sports, Science and Technology; the Japan Heart Foundation; the Meiji (Yasuda) Life Foundation of Health and Welfare; the St Luke's Life Science Foundation; and the Japan Arteriosclerosis Prevention Fund. The author serves as a trustee of the NPO Japan Internet Medical Association and the Japan Medical Communicators Association. The author declares that he has worked independently of these organizations and that the research in this document has not been influenced by the organizations or their representatives. There are no financial conflicts of interest other than the grants noted above.



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### Ⅲ. 研究成果の刊行に関する一覧表

## 研究成果の刊行に関する一覧表

雑誌（英文）

発表者氏名	論文タイトル名	発表誌名	巻号	頁	出版年	別刷 本編 記載頁
Irie F, Iso H, Sairenchi T, Fukasawa N, Yamagishi K, Ikehara S, Kanashiki M, Saito Y, Ohta H, Nose T.	The relationships of proteinuria, serum creatinine, glomerular filtration rate with cardiovascular disease mortality in Japanese general population.	Kidney International	69	1264-1271	2006	93
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