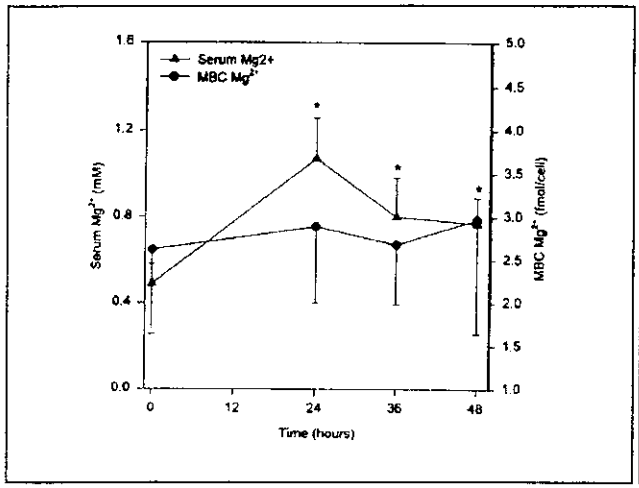
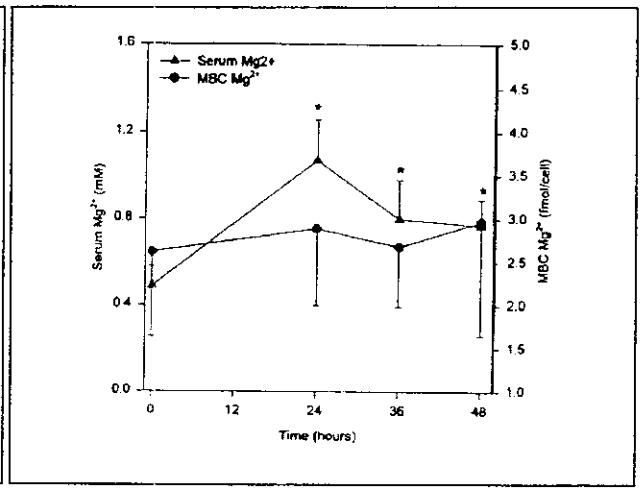
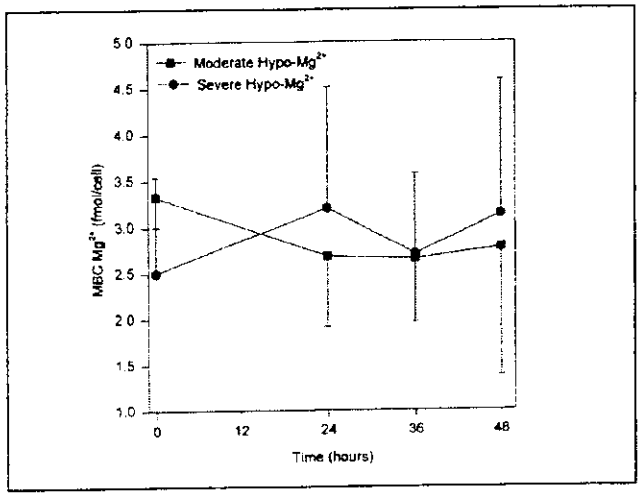


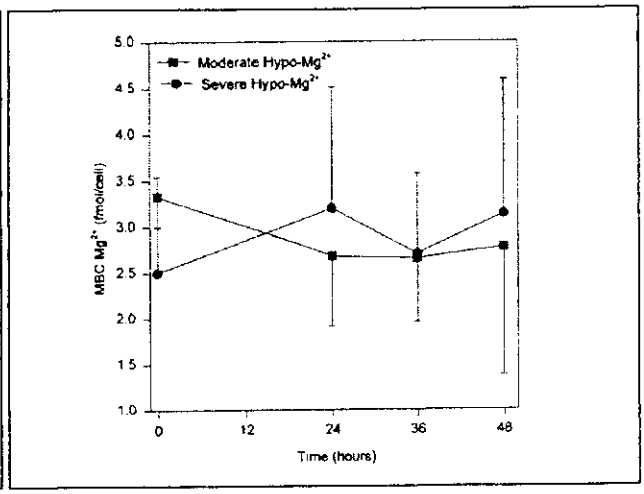


Serum magnesium concentrations increased significantly from baseline to 48 hours (0.5 ± 0.1 to 0.8 to 0.2 mmol/L).

血清マグネシウム濃度は48時間に渡り増加した(0.5±0.1から0.8±0.2 mmol/L)。



MBC magnesium content did not change significantly within the study period (2.6 ± 1.0 to 3.0 ± 1.3 fmol/cell).



MBCのマグネシウム含有量は研究期間中、変化は認められなかった (2.6 ± 1.0 から 3.0 ± 1.3 fmol/cell)。

Mg Replacement in Critical Illness

"Aggressive doses of IV $MgSO_4$ increase serum Mg concentrations but do not significantly change MBC Mg concentrations in critically ill hypomagnesemic patients"

重症患者におけるMgの投与

"重症低マグネシウム血症の患者に対し、積極的に$MgSO_4$を静注することにより血清中 Mg 濃度は上昇するが、単核血液細胞中の Mg 濃度は有意に変化しない。"

Inadequate magnesium supplementation doses or hormonal alterations may have interfered with the intracellular regulation of magnesium content.

不適切なマグネシウムの投与、またはホルモン変化は細胞内のマグネシウム含有量の調整を妨げる可能性がある。

Lipid Vehicle Medications

Medication	Usual Dose	kcal/dose
Propofol	5 - 50 mcg/kg/min	48-504
Ambisome	5 mg/kg/d	19
Abelcet	5 mg/kg/d	3.15
Ampho B with Intralipid	0.5 mg/kg/d	140

Sacks et al. Ann Pharmacother 1997;31:121-11.

脂質を含有する賦形剤

薬物	通常の用量	kcal/dose
Propofol	5 - 50 mcg/kg/min	48-504
Ambisome	5 mg/kg/d	19
Abelcet	5 mg/kg/d	3.15
Ampho B with Intralipid	0.5 mg/kg/d	140

Sacks et al. Ann Pharmacother 1997;31:121-11.

The nutritional effects of drug vehicles may also have an impact on the delivery of specialized nutrition support in critically ill patients. The intravenous general anesthetic agent propofol, which has sedative and anxiolytic properties, is formulated in a 10% lipid emulsion in the United States. This vehicle provides the patient with 1.1 calories for each milliliter of propofol emulsion. When used several days in a critically ill patient, propofol can provide significant fat calories and this should be taken into consideration when calculating the patient's nutritional support requirements. For example, propofol administered within recommended dosing guidelines of 5-50 mcg/kg/min can supply between 48 to 504 additional fat calories per day. Prudent use of this drug and downward adjustment of lipids in parenteral nutrition or use of low-fat enteral formulas may help minimize excessive fat administration. Other lipid formulations of drugs, such as those available for amphotericin B, do not provide a clinically important number of fat calories.

薬物中に含まれる賦形剤による栄養学的効果もまた重症患者におけるニュートリションサポートの供給に影響を与える可能性がある。静注で用いられる一般的な麻酔薬であるpropofolは、鎮静作用や抗不安作用を有し、米国では10 %の脂質乳化剤に溶かして用いられる。この賦形剤は患者にpropofol 乳化剤1 ml当たり1.1カロリーを与えることになる。重症患者に何日も使用すると、propofolはかなりのカロリーを供給することになり、患者のニュートリションサポートで必要とされるカロリーを計算する時には考慮する必要がある。例えば、ガイドラインで推奨されている5～50 mcg/kg/minの範囲で投与されたpropofolは、1日に48から504余分にカロリーを供給することになる。この薬物を慎重に投与し、輸液で行う脂質摂取を減量するように調節するか、低脂肪の経腸栄養法により過剰な脂質投与の影響を最小限に抑える必要がある。Amphotericin Bのような他の脂質に溶解している薬物は、臨床的にそれほど重要な量の脂質カロリーを供給するものではない。

Summary

- Various antibiotics decrease caloric consumption by interfering with GI tolerance
- Knowledge of clinically significant drug interactions can help identify and prevent metabolic alterations

要約

- 多くの抗生剤は消化管の障害によりカロリーの消費が減少する。
- 臨床的に重要な薬物相互作用の知識は診断の手助けとなり、かつ代謝性の変化を未然に防ぐことができる。

Drugs and nutrients can potentially interact in many different ways. It is prudent to be aware of medications that may interfere with fluid and electrolyte balance or gastrointestinal tolerance when one is prescribing specialized nutrition support. Knowledge of clinically significant interactions and close monitoring can help to identify trends so that early treatment can prevent these metabolic complications.

In conclusion, I wish to say again how much of a privilege it is to be able to present before you. I know I have learned much during my visit and I hope that I have been able to contribute useful information that will assist you in the care of your patients. I would be pleased to answer any questions about specialized nutrition support and the role of the pharmacist in the American health care system. Thank you.

まとめと結論

薬物と輸液は多くの機序により相互作用を引き起こす可能性がある。専門的ニュートリションサポートを処方する場合は、体液と電解質のバランスや胃腸の抵抗力を妨げるような投薬には慎重でなくてはならい。臨床的に重要な相互作用の知識に加え、患者をしっかりモニタリングす驍ｱとが動向を見極る手助けとなり、早期治療によって代謝性の合併症を予防することができる。

最後に、皆様の前で発表できたことを大変光栄に思います。私は日本訪問の間にたくさんのことを学びました、また今回の発表が皆様が患者の治療を行うのに有用な情報を提供できましたなら幸いです。もし専門的ニュートリションサポートおよびアメリカのヘルスケアシステムにおける薬剤師の役割につきまして、ご質問があれば喜んでお答えしたいと思います。ありがとうございました。

"Pharmaceutical Care in the United States: Expanding Roles of the Pharmacist in Medical Practice"

(アメリカにおけるファーマシューティカルケア：医療現場で広がっている薬剤師の役割)

by David M. DiPersio, Pharm.D.,
Vanderbilt University Medical Center

学術講演会のご案内

謹啓　新春の候、先生方には益々ご清祥のこととお慶び申し上げます。

学術研修会を下記のとおり開催致しますので、万障お繰り合わせの上、多数ご出席賜りますようご案内申し上げます。なお、本研修会は平成１２年厚生科学研究補助金の交付を受けた医薬安全総合研究事業および医薬安全総合研究推進事業に係わる研究課題「医薬品の適正使用における病院薬剤師の役割」の実施（１月 27―28 日に名古屋にて同一課題のシンポジウム）の一環であります。

謹白

記

1. 日　時：平成 13 年 2 月 15 日（木）　午後 6 時 30 分～8 時

2. 場　所：アルカディア市ヶ谷私学会館
東京都千代田区九段下北 4-2-25　Tel: 03-3261-9921, Fax:03-3261-7760

3. 講　演：

演 題　Pharmaceutical Care in the United States: Expanding Roles of the Pharmacist in Medical Practice

「アメリカにおけるファーマシューティカルケア：
医療現場で広がっている薬剤師の役割　」

講 師　David DiPersio博士
Vanderbilt University Medical Center

[講演内容のスライド・発表原稿（英文・和文）は当日配布されます]

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主　催　平成 12 年厚生科学研究費補助金（医薬安全総合研究事業）
医薬品の適正使用における病院薬剤師の役割　研究班
平成 12 年厚生科学研究補助金（医薬安全総合研究推進事業）
財団法人　日本公定書協会

共　催　日本病院薬剤師会・東京都病院薬剤師会

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November, 1997

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Date of Birth: June 9, 1953

Marital Status: Single

EDUCATION/TRAINING

Certification:
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December 31, 1996

Fellowship:
Clinical Pharmacy Fellowship (Cardiology and Pharmacokinetics)
Hartford Hospital, Hartford, CT. Preceptor: Moses S.S. Chow, Pharm. D.
July, 1983 to June 1985

Doctor of Pharmacy:
University of Tennessee Center for the Health Sciences, June, 1983

Residency:
ASHP Accredited Residency in Hospital Pharmacy, University of Connecticut Health Center, Farmington, CT. Preceptor: Paul F. Davern, B.S. Pharm, M.B.A., June, 1980

Bachelor of Science in Pharmacy:
University of Connecticut, Storrs, 1976

PROFESSIONAL EXPERIENCE

November 1987 to present:
Clinical Assistant Professor, University of Tennessee College of Pharmacy
clinical sites: Vanderbilt University Medical Center, Nashville, TN;
and Stanton Community Clinic, Stanton, TN (June 1992 to October 1994)

April 1986 to present:
Clinical pharmacist, Critical Care, Vanderbilt University Hospital, Nashville, TN

PROFESSIONAL EXPERIENCE (continued)

July 1985 to April 1986:
Pharmacy service, clinical and research activities, Hartford Hospital, Hartford, CT

July 1983 to March 1986:
Assistant Clinical Professor, University of Connecticut School of Pharmacy clinical site: Hartford Hospital

July 1980 to July 1981:
Unit-dose/Clinical Pharmacist, University of Connecticut Health Center, John Dempsey Hospital, Farmington, CT

August 1979 to August 1981:
Relief Pharmacist: Shop-Rite Drugs of CT; North Central Connecticut Health Maintenance Organization, East Hartford, Ct; Burgdorf Medical Clinic, Hartford, CT; Capital Region Mental Health Center, Hartford, CT

July 1976 to July 1979:
Shop-Rite Drug Stores in Connecticut:
Pharmacy Manager, New Britain, CT. October 1977 to July 1979
Department Manager, Manchester, CT. September 1976 to October 1977
Staff Pharmacist, Meriden, CT. July 1976 to September 1976

September 1969 to July 1976:
Pharmacy Intern/Apprentice: Shop-Rite Drug Stores in Connecticut; Univ. of CT Infirmary, Storrs; Market Square Pharmacy, Newington, CT; Family Drug, Inc., Meriden, CT

PROFESSIONAL LICENSURE

Connecticut State Board of Pharmacy #5045; July, 1976
Tennessee State Board of Pharmacy #6880; September, 1986

HONORS

Dean's List, University of Connecticut School of Pharmacy, 1971-1973
Rho Chi Honor Society, University of Tennessee Center for the Health Sciences, 1982

PROFESSIONAL MEMBERSHIP

American Society of Hospital Pharmacists
American College of Clinical Pharmacy
American Heart Association
Middle Tennessee Society of Hospital Pharmacists
Past Member, Connecticut Society of Hospital Pharmacists
Past Member, Connecticut Pharmaceutical Association
Past Member, Student American Pharmaceutical Association
Vice-president and Treasurer, 1973-1974 Academic Year, University of Connecticut Chapter

David Michael DiPersio
November, 1997

PUBLIC SERVICE

Presentations to Connecticut high school students on the topic of drug abuse, September, 1973 to May, 1974

PUBLICATIONS

Finder SG, DiPersio, DM. Relationships with patients and physicians. In: Ethical Issues in Pharmacy, Weinstein B, ed. Vancouver, WA: Applied Therapeutics, Inc.; 1996, 110-35.

Capparelli EV, Hanyok JJ, DiPersio DM, Kluger J, Fieldman A, Chow MSS. Diltiazem improves resuscitation from experimental ventricular fibrillation in dogs. Crit Care Med 1992. (In press).

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Zhao H, Capparelli EV, Chow MSS, DiPersio DM, Hanyok J, Kluger J, Fieldman A. Effect of cardiopulmonary resuscitation on plasma diltiazem concentrations in dogs. Pharmaceutical Research 4:S123, 1987 (abstract)

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Zhao H, DiPersio DM, Capparelli EV, Kluger J, Chow M. Clinical pharmacokinetics of controlled release disopyramide. Clin Pharmacol Ther. 41:183, 1987 (abstract)

DiPersio D, Chow MSS. Method of transfer from immediate release to sustained release disopyramide therapy. Angiology 38:188-91, 1987.

DiPersio D, Chow MSS, Kluger J, Khoo KC, Massarella D, Rotenberg D, Aogaichi K. Effect of renal impairment on the pharmacokinetics of cibenzoline. Clin Pharmacol Ther. 39:190, 1986 (abstract)

Chow MSS, Kluger J, DiPersio DM, Lawrence R, Fieldman A. Antifibrillatory effects of lidocaine and bretylium immediately post cardiopulmonary resuscitation. Am Heart J. 110:938-43, 1985

Hanyok JJ, Kluger J, DiPersio DM, Chow MSS. Lorcainide for the treatment of drug-resistant ventricular tachycardia: Electrophysiologic and clinical results. Drug Intell Clin Pharm. 19:459, 1985 (abstract)

PUBLICATIONS (continued)

Hanyok JJ, DiPersio DM, Chow MSS. Prediction of steady-state trough plasma quinidine concentration following administration of a sustained-release preparation. Drug Intell Clin Pharm 19:459, 1985 (abstract)

Chow MSS, DiPersio DM, Kluger J, Fieldman, A. The hemodynamic effects of epinephrine and calcium chloride during cardiopulmonary resuscitation. Drug Intell Clin Pharm. 19:460, 1985 (abstract)

DiPersio DM, Chow MSS. Predicting plasma procainamide concentrations resulting from a sustained-release preparation. Clinical Pharmacy 4:186-91, 1985

Abstractor for U.S. Pharmacist, 1981 to 1983

PRESENTATIONS

Compatibility of amino-acid/dextrose TPN solutions with antimicrobials using a multiple-line infusion system. American Society of Hospital Pharmacists Midyear Clinical Meeting, New Orleans, Louisiana. December 10, 1991 (Poster Presentation)

Compatibility of Critical-Care Medications in a Multiple-Line Infusion System. American Society of Hospital Pharmacists Midyear Clinical Meeting, New Orleans, Louisiana. December 11, 1991 (Poster Presentation)

Applicable pharmacokinetic principles. Tennessee Society of Hospital Pharmacists Annual Meeting, Nashville, Tennessee. March 16 & 17, 1990. ACPE # 180-064-90-101 (Two hour workshop)

Establishing an aminoglycoside dosing service. Vanderbilt Medical Television, Nashville, Tennessee. February 27. 1990. ACPE # 188-534-90-01.

Therapeutic drug monitoring in bone marrow transplantation. Vanderbilt Medical Television, Nashville, Tennessee. November 29, 1989. ACPE # 188-534-89-08.

Digoxin pharmacodynamics. Vanderbilt Medical Television, Nashville, Tennessee. September 27, 1988. ACPE # 188-534-88-05.

Aminoglycoside pharmacokinetics. Vanderbilt Medical Television, Nashville, Tennessee. October 27, 1987. ACPE # 188-534-87-04.

Data collection in critical care medicine: the role of the pharmacist. Pharmacy Practice in Critical Care Medicine Symposium, Saint Thomas Hospital, Nashville, Tennessee, September 25, 1987. ACPE # 189-425-87-03.

Clinical pharmacokinetics of controlled release disopyramide. American Society for Clinical Pharmacology and Therapeutics, Orlando, Florida. March 27, 1987 (Poster Presentation)

PRESENTATIONS (continued)

Rapid individualization of gentamicin therapy using a novel nomogram - Theta Kinetics. American Society of Hospital Pharmacists Midyear Clinical Meeting. Las Vegas, Nevada. December 11, 1986 (Poster Presentation)

Effect of amiloride on serum digoxin concentrations and systolic time intervals in patients with congestive heart failure. American Society of Hospital Pharmacists Midyear Clinical Meeting, Las Vegas, Nevada. December 9, 1986 (Poster Presentation)

Providing quality drug information - Part II of II. Vanderbilt Medical Television, Nashville, Tennessee. October 28, 1986. ACPE # 188-534-86-10.

Providing quality drug information -Part I of II. Vanderbilt Medical Television, Nashville, Tennessee. September 30, 1986. ACPE #188-534-86-09.

Effect of renal impairment on the pharmacokinetics of cibenzoline. American Society of Clinical Pharmacology and Therapeutics. Washington, D.C. March 1986

Prediction of serum theophylline concentrations following a once daily sustained-release preparation. American Society of Hospital Pharmacists 20th Annual Midyear Clinical Meeting, New Orleans, Louisiana. December 11, 1985 (Poster Presentation)

Prediction of plasma procainamide concentrations following a sustained-release procainamide preparation determined from in vitro and immediate-release procainamide data. American Society of Hospital Pharmacists 19th Annual Midyear Clinical Meeting, Dallas, Texas. December 5, 1984 (Poster Presentation).

Calcium channel blocker agents in emergency medicine. Greater Hartford Area EMT group, Hartford, CT. November 16, 1984

Cardiovascular therapeutics - Antiarrhythmics, calcium channel blocker agents, and cardiovascular drug interactions. Day-Kimball Hospital, Putnam, CT. September 26, 1984

Nursing ICU core curriculum series - Antiarrhythmics. Hartford Hospital, Hartford, CT. March, 1984

Theta kinetics - a novel method to rapidly individualize aminoglycoside dosage without the use of a programmable calculator. Pharmacy staff, city of Memphis Hospital, Memphis, TN. September 1, 1982

COMPLETED RESEARCH PROJECTS

Blinded, placebo controlled comparison of calcium chloride with diltiazem on survival, cardiac and function and pathological changes post fibrillatory arrest and cardiopulmonary resuscitation in dogs

Pharmacokinetics and serum protein binding of disopyramide following a sustained-release preparation in patients with arrhythmias

COMPLETED RESEARCH PROJECTS (continued)

Effect of amiloride on the pharmacokinetics and pharmacodynamics of digoxin in patients with congestive heart failure

Effect of renal impairment on the pharmacokinetics of cibenzoline

Pharmacokinetic evaluation of sustained-release dosage forms: quinidine, procainamide and theophylline preparations

Pharmacodynamic evaluation of lorcainide

Pharmacological activity of epinephrine and calcium chloride in cardiopulmonary resuscitation in dogs

Chronopharmacokinetics of a sustained-release theophylline preparation at steady-state following once- and twice-daily dosing in healthy volunteers

Bioavailability of a sustained-release theophylline preparation given once- or twice-daily to healthy volunteers; two steady-state crossover studies at different daily dosages

Prospective examination of one-compartment pharmacokinetic gentamicin predictive models in patients

PRECEPTORSHIP

Cardiology Clerkship, University of Tennessee School of Pharmacy - Pharm.D. Program. June, 1994 - present.

Ambulatory Care Clerkship, University of Tennessee School of Pharmacy, Stanton Community Clinic, Stanton, TN, 1991 - October, 1994.

Medicine Clerkship, University of Tennessee School of Pharmacy - Pharm.D. Program, September 1987 - present.

Cardiology/Medicine and Drug Information clerkships - Senior Pharmacy students, University of Connecticut School of Pharmacy, September, 1983 - May 1985

Advanced cardiology therapeutics, University of Connecticut School of Pharmacy, Spring, 1984

Clerkship in research techniques, University of Connecticut School of Pharmacy, Spring, 1984

REFERENCES

Available on request

＜講演１＞

“Pharmaceutical Care in the United States: Expanding Roles of the Pharmacist in Medical Practice”

「アメリカにおけるファーマシューティカルケア：医療現場で広がっている薬剤師の役割　」

Pharmaceutical Care in the United States

Expanding Roles of the Pharmacist in Medical Practice

David DiPersio, B.S., Pharm.D., BCPS
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アメリカにおける ファーマシューティカルケア

医療現場で広がっている薬剤師の役割

David DiPersio, B.S., Pharm.D., BCPS
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Nashville, TN

和訳：瀬沼 香代子　東京薬科大学 薬剤部
監訳：西谷 篤彦、吉野 清高　順天堂医院 薬剤部

Evolution of Clinical Pharmacy
(now called Pharmaceutical Care)

Clinical Pharmacy was first proposed more than 30 years ago as an extension of traditional pharmacy dispensing roles

To me, the concept of clinical pharmacy is the freshest, most invigorating, most challenging and exciting breeze that has blown across the horizons of pharmacy in any land for generations. I hope that its message will ring loud and clear to pharmacists all over the world...

Donald E. Franke, 1976

臨床薬学の発展
(今やファーマシューティカルケアと呼ばれるまで)

臨床薬学は従来の薬局の調剤業務の延長として30年前に提案された。

私にとって、臨床薬学の概念は薬学の従来の地平線を越えて吹いてきた、最も新鮮で最も活気づけられる、そして、最も挑戦的で興奮させられるようなそよ風のような存在です。

Donald E. Franke, 1976

Clinical pharmacy in the United States was a concept that was introduced in 1968 in American hospitals. The concept of a clinical pharmacist was an effort to expand the role of the pharmacist from traditional distribution roles to patient care roles. Clinical pharmacy was introduced to community setting about 3 years later through the efforts of a few state schools of pharmacy, primarily Kentucky and Tennessee.

Introduction of the five year entry-level pharmacy education program in 1960 and the six year PharmD degree in three California schools increased the contact time needed to learn the necessary skills needed to practice patient oriented clinical pharmacy.

Current requirements for new graduates in the United States are a minimum of a six years of studies to graduate with a pharmacy degree, increasing learning opportunities for advanced pharmacy care.

The term "Clinical Pharmacy" has now been largely replaced with the broader term "pharmaceutical care", which is defined as "the responsible provision of drug therapy for the purpose of achieving desired outcomes that improve a patients quality of life"

臨床薬学はアメリカの病院に1968年に導入されました。臨床薬学の概念は従来の調剤業務から患者ケアに薬剤師の役割を広げることを目的としています。その３年後、この概念はケンタッキーやテネシーの州立の薬学部により、開局の現場にも紹介されました。

1960年の薬学部への５年制の導入や、３つのカリフォルニアの薬学部でのPharm.D.の導入が臨床現場で患者志向の実践技術を習得するために必要な研修時間が増やされました。

現在のアメリカでの薬学教育は卒業までに最低６年間を要し、さらに進んだ薬剤師業務を学ぶ機会を増やしています。

臨床薬学という言葉は現在、ファーマシュ-ティカルケアという広い意味の言葉に置換わっています。その定義として、患者のQOLの向上、理想とされる治療目標を達成するように薬物治療に責任をもって参加することとなっています。

Early Types of Clinical Pharmacy Practice

- Drug and Poison Information Centers managed by pharmacists
- Primary Care in underprivileged areas and Government supported facilities
- "Decentralized" Patient-Unit Pharmacists
- "Unit-Dose" Drug Distribution
- Residency training in Pharmacy Practice
- Enteral and Parenteral Nutrition Services

初期のころの臨床薬剤師業務

- 薬剤師によって運営された医薬毒物情報センター
- 貧困地区や政府支援施設での一次医療
- "分散されて" 病棟毎に配置された薬剤師
- "一包化" された調剤とその与薬
- 薬局現場でのレジデントの訓練
- 経腸、非経口栄養剤のサービス

Early clinical pharmacy programs which were established included roles typically performed by other health care disciplines. Drug information responsibilities were previously accomplished by clinical pharmacologists, and poison information was provided by toxicologists.

In addition to treatment by physicians, assistance in primary care was typically performed by nurses and midwives.

The concept of "decentralized" pharmacists, where pharmacists were removed from the usual basement location in hospitals and placed in patient-care areas, increased visibility and allowed collection of patient specific information. This trend was quite expensive, however, and has added to staffing difficulties. Current trends in pharmacy practice are to return most pharmacists back to a central location. Improvements in computerized patient information and drug dispensing machines allow for the change.

Unit-dose drug distributions systems, introduced more than 25 years ago, were seen as a method to reduce dosing errors and prevent dosage contamination. Previously, nursing units were required to remove drugs from bulk bottles in pharmacy rooms, which led to uncertainty in dose preparation and increased error risk.

Residencies in hospital pharmacy were established, with standards of care determined by the American Society of Hospital Pharmacists in 1973.

Pharmacists have participated in parenteral nutrition support from the introduction of complex nutrient solutions more than 30 years ago, initially with preparation of solutions, and later in designing contents of intravenous formulations.

初期の臨床薬剤師業務は他の医療関係者の活躍によって成り立っていました。医薬情報は以前は主に臨床薬理学者に よって行われ、毒劇物情報は毒物学者が担っていました。

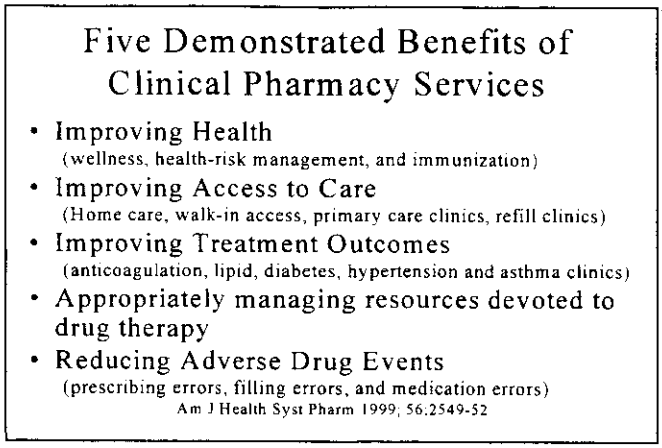
外来治療では、医師による治療に加え看護婦や助産婦が典型的に活躍していました。

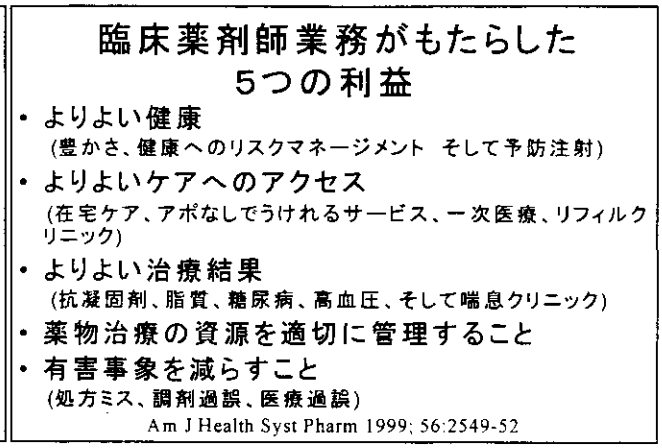
病院の地階から薬剤師がはずされ、病棟に分散されるという概念は薬剤師を更に‘見える’ようにし、患者の特定の情報を収集しやすくしました。しかしながら、この動きはコスト的にかかるもので人材確保を困難にしました。現在の傾向としては殆どの薬剤師が薬局本部に戻るようになってきており、情報のコンピューター化や調剤機材の改良がこれらの変化を支えています。

投与量の混乱やミスを防ぐため、ヒート包装は２５年以上も前に導入されまいした。以前は看護婦がビンから量りとられなければなりませんでしたが、投与数が不確かで、過誤のリスクを上げていました。

1973年にASHP（ the American Society of Hospital Pharmacists）によって患者ケアの内容の標準化がされた時に、レジデンシー制度も確立されました。

薬剤師は30年以上も前に複雑な組成の栄養液が導入されてから、非経口栄養剤業務に参加しており、初期の頃は栄養剤を調剤し、その後、静注用の組成も手がけるようになりました。





Inappropriate allocation of a pharmacists efforts occurred in the earliest forms of clinical pharmacy practice. An initial practice of participating in general medical teaching rounds in most medical and surgical areas was not found to be cost-effective. Highly selective participation in patient care activities which involve extensive drug therapy is currently considered important in pharmaceutical care.

This slide lists five areas where the benefits if clinical pharmacy be been shown to be cost effective. I would like to review each of these roles in greater detail.

初期の頃の臨床薬剤師業務では、薬剤師の努力が不適切なところにむけられていた。内科や外科の教育も兼ねた医師回診では薬剤師参加がコスト面で有用であるとはわかってもらえませんでした。さらに専門的な分野での特に薬物治療に関与した活動が現在ではファーマシューティカルケアとして重要であると考えられています。

このスライドは臨床薬剤師がコスト面で有用であるといわれている５つの分野を上げています。これより一つ一つについて時間をかけて見ていきます。

Pharmacy Roles which Improve Health

No single medical profession has taken a leadership role in health improvement, but pharmacists have shown value in:

- Hypertension, Lipid and Diabetes screening and counseling
- Smoking cessation programs
- Immunizations (influenza and pneumonia)
- Telephone follow-up for late prescription refills

Am J Health Syst Pharm 1999; 56: 2549-52

健康改善での薬剤師の役割

- 他の医療職種は単一でリーダーシップをとったことがない。
- しかし、薬剤師は高血圧、脂質、糖尿病におけるスクリーニングやカウンセリング、禁煙プログラム、予防注射(インフルエンザ、肺炎)、そしてリフィルで電話連絡することによって価値を示してきた。

Am J Health Syst Pharm 1999; 56: 2549-52

Pharmaceutical care roles designed to improve health are not unique and are practiced by many other health care professionals.

Community pharmacies and clinics have been very helpful in screening patients for health related disorders such as high blood pressure, elevated serum cholesterol, and diabetes mellitus.

In some selected areas, pharmacists have assisted in smoking cessation programs. Unfortunately, most community pharmacies in the United States still continue to sell cigarettes are part of their business practices, limiting the value of such programs to clinic based settings. At this time, about 25% of adult Americans smoke cigarettes, although this number is gradually declining.

Immunizations, particularly for prevention of influenza virus and bacterial pneumonia have become common in community pharmacies.

Recent improvements in computerized patient records have led to the practice of pharmacies to call patients to remind them to refill chronic medication prescriptions. In the United States, it is customary for pharmacists to fill all prescriptions written by physicians. Pharmacists usually dispense a one month supply of drug, and are allowed to refill most prescriptions for up to one year after the initial date that the order was written.

より良い健康を目的としたファーマシュ-ティカルケアという活動は薬剤師特有のものではなく、多くの医療従事者によっても実践されています。

地域薬局薬剤師とクリニックでは高血圧、コレステロール上昇、糖尿病などの疾患をスクリーニングすることに従来より熱心に取り組んできた。

ある地域では、薬剤師は禁煙プログラムを支援してきました。不運なことに、殆どのアメリカの開局薬剤師はいまだにタバコを販売し、その価値をクリニックでの活動ということに限る結果となっています。アメリカの成人人口の25%が喫煙しているがその数は徐々に減少しています。

インフルエンザや肺炎菌の予防接種が開局薬剤師の活動として盛んになってきています。

最近の患者情報のコンピューター化も改良がすすみ、患者の慢性疾患での薬剤のリフィルを忘れずに患者に知らせるのに役立っています。アメリカでは通常、医師の処方箋を薬剤師が1ヶ月分ずつ調剤し、その後、処方箋上の医師の記載により、1年までリフィルが認められています。

Pharmacy Roles which Improve Access to Health Care

Home-Care Pharmacy services which are offered in United States include:

- Pain management
- Access to chronic intravenous antibiotic therapy
- Enteral and Total Parenteral Nutrition
- Infusion Therapy (e.g., epoprostenol)
- Cancer Chemotherapy

Cost avoidance and patient convenience are positive aspects of Home Care

Am J Health Syst Pharm 2000; 57: 1786-90

ヘルスケアを更に利用しやすくするための薬剤師の役割

アメリカでの在宅ケア薬局サービス

- 疼痛管理
- 長期静注抗生物質へのアクセス
- 経腸、非経口栄養
- 点滴療法(エポプロステノール)
- 化学療法

コスト回避と患者の便利さが在宅ケアのプラス面である。

Am J Health Syst Pharm 2000; 57: 1786-90

Home care pharmacy was initiated in the United States more than ten years ago to reduce the amount of money which was being spent in keeping otherwise healthy patients in hospitals.

病院に患者を引き留めさらに費やしていた費用を減らすためにアメリカでは10年以上も前に在宅薬局ケアが始まりました。

Patients in chronic pain from chronic or terminal disease can be safely and economically treated at home.

末期疾患の慢性的な疼痛に苦しむ患者は安全で、経済的にも良い条件で自宅にて治療がうけられます。

Infectious disease which require prolonged intravenous antibiotics, such as osteomyelitis or endocarditis, and effectively be treated at home, allowing patient freedom and decreasing cost.

骨髄炎や心内膜炎などの感染症は長期に渡って抗生物質を点滴静注しますが、自宅にて効果的に治療でき、患者の自由もきき、コスト削減も可能です。

Parenteral nutrition which can be administered at home is an important role of many home care pharmacies. Sterile TPN bags are usually prepared by pharmacists as much as a week in advance and delivered to patient refrigerators to be stored for later use. Formulas are modified if needed, usually on a weekly basis, based on serum laboratory values.

在宅薬剤師の重要な役割として自宅にて投与可能な非経口栄養剤があります。滅菌TPNバッグは通常、最長1週間前には調製され患者宅の冷蔵庫にて保存されます。組成は患者の検査値に基づき、通常一週間単位で必要に応じて変えられます。

The introduction of drugs given by infusion devices, such as epoprostenol, a drug to treat primary pulmonary hypertension that is supplied in portable infusion devices, have further advanced the role of the home-care clinical pharmacist.

携帯用点滴用具を使って投与される薬剤、エポプロステロール等は原発性の肺高血圧症に用いられ、在宅ケア薬剤師の役割を更に広げました。

Home infusion of cancer chemotherapy drugs has also been shown to reduce treatment time and improve symptoms such as nausea.

抗がん剤在宅点滴療法は治療期間を短縮することがわかっており、吐き気などの症状改善にも効果があります。