

Clinical Pharmacy Participation in Formulary Management

A formulary is a list of drugs which are cost effective relative to other similar agents

American pharmacists benefit health care by:

- Negotiating purchasing contracts to reduce cost
- Determining value from literature evaluation
- Performing drug utilization reviews
- Incorporating drugs into clinical pathways
- Participating in the Institutional Review Board
- Participating and conducting clinical trials

採用薬品管理への臨床薬剤師の参加

病院の医薬品集に載っている採用薬は他の同類の薬に比べ費用効果的である。アメリカの薬剤師は以下のことにより、ヘルスケアに貢献する。

- コスト減額にすべく購入時に交渉
- 文献評価からその価値を読み取る
- DURを行うこと
- クリティカルパスに薬剤を組み込むこと
- 院内委員会に参加すること
- 臨床試験を実施そして参加すること

The role of the P and T committee is to establish a list of drugs which are to be stocked and available for use in the hospital. These drugs are reviewed individually and are considered to be either cost effective or necessary for patient care.

The selection of drugs available on the formulary is often influenced by promotional cost advantages offered by drug manufacturers to pharmacy departments.

Drugs which are similar in cost are usually selected following review of clinical evidence suggesting superiority of that particular drug in treating a disease.

Following admission of a drug into the formulary, occasional drug utilization reviews are conducted by pharmacists and are reported back to the committee as requested.

The P & T committee also oversees the formation of drugs in clinical pathways, which are drug treatment plans designed to use drugs in an appropriate manner.

In academic medical centers, involvement of clinical trial research and recommendations of the institutional review board on drug use care discussed.

薬事審議会の役割は病院で使用可能な薬剤を並べ上げることです。個々の薬剤は見なおされ、コスト的に効果的か、その患者に必要ななどが評価されます。

製造業者によって薬局に申し出された価格がしばしば採用薬選択に影響を及ぼします。

コストが近い薬剤は疾患を治療するのにどちらが優秀かを示す臨床的なデータにより見なおし選択されます。

医薬品集への掲載に続いて、委員会の要望により薬剤師による使用解析が行われることがあります。

薬物治療が適切に行われるよう計画されたクリティカルパスの薬物もまた薬事審議会で見なおされます。

学術的活動をしているメディカルセンターでは臨床治験を行い、その施設ごとに薬剤の使用方法などについて見なおされています。

Benefits of a Pharmacist In Investigational Drug Services

Federal (US) law requires participation of pharmacy in storing and dispensing of investigational drugs for clinical trials, but defined clinical services are relatively new

- Pharmacists are used to maintain blinding, prepare and dispense medications, and insure protocol compliance
- Costs of services are paid by study sponsor fees. Savings can be attributed to cost avoidance for not having to purchase drugs used in studies

Am J Health Syst Pharm 2000; 57: 40-43

治験薬管理に薬剤師をおくことの意味

- 国の法律では臨床試験で治験薬の調剤とその保管に薬剤師の参加を義務付けている。しかし、そこに定められた臨床業務は比較的新しい。薬剤師は盲目試験を維持し、治験薬を調剤、配布し、プロトコールに沿っているか確かめる。
- かかるコストは治験スポンサーから払われるので、治験で使われる薬剤を購入しなくてよいというコスト回避に寄与する。

Am J Health Syst Pharm 2000; 57: 40-43

In drugs which perform experiments with drugs in humans, Federal United States law requires the pharmacy department to participate in selected areas of drug storage, dispensing, and record keeping.

At Vanderbilt Hospital in Nashville, there are several hundred drug studies underway at any one time. Most of these studies are basic pharmacology studies in animals which do not involve humans. These studies do not directly involve a pharmacist.

An investigational drug pharmacist works with several technicians to insure compliance with drug protocols, assist with randomization of drug use, and to appropriate store, prepare and label drugs for use.

The costs of maintaining an investigational drug service are more than offset by fees paid by study sponsors to investigate the drugs. An additional cost saving can be assumed if a study drug replaces and otherwise expensive commercially available drug.

人体で実験をすることになる薬剤について、連邦規則によって薬物を保存すること、調剤すること、記録をとることが必須とされています。

バンダ-ビルド病院では数百の薬剤がいつでも研究中です。殆どの研究が人間以外の動物を使った基礎薬理的なものです。これらの研究に薬剤師は直接関わっていません。

治験薬専門薬剤師はその治験がプロトコールに沿っているか、無作為にあてがわれているか、保存状態、薬剤のラベルづけなどをテクニシャンを使って行います。

治験薬サービスにかかる費用は治験薬の申請をしている会社によって支払われています。その額は病院側に余裕がでるというものでもなく、ここで費用が節約されれば治験薬を使うことによって、市場に出ている高価な薬をその間使用しないことからくる費用ぐらいでしょう。

Duties of an Informatics Trained Pharmacist

- Review and refine drug selection and dosing orders based on age and weight of patients
- Insure that drug interaction warnings are not overlooked and are appropriate
- Design “pop-up” web pages for items such a chemotherapy, formulary management, drug dosing and selection
- Reduce the likelihood of medication errors

コンピューターシステムを使った 薬剤師業務

- 薬物選択や投与量のオーダーを患者の年齢、体重に基づいて見なおす。
- 薬物相互作用が見落としがないよう、また適切であるよう確かめる。
- 化学療法、医薬品集管理、薬物選択と投与計画などの項目について‘ポップアップ’ウェブページを立案する。
- 医療過誤のおこる可能性を低くする。

Informatics is the newest medical discipline, and is perhaps the most exciting. Informatics is the use of computer support to gather, display, store, inform, and promote practice guidelines to health care professionals to insure cost-effective appropriate patient care.

Informatics trained pharmacists will likely be responsible for positively influencing more physicians than any other clinical pharmacy discipline.

An informatics trained pharmacist assists with reviewing and refining drug selection and dosing orders using the age and weight of the patient. Drug interactions which might occur with selected drugs are displayed at the moment drugs are ordered, allowing selection of more appropriate agents

Assistance with drug selection is often dosed with computer force web pages which “pop-up” automatically if specific drugs are ordered. Drug and dosage selection information pages are also controlled by the informatics pharmacist.

The use of this information is critical to reverse the trend toward adverse medication events in American hospitals

コンピューターシステムを導入したやり方は最も新しく、そして最も楽しみなものかんもしれません。このシステムにより、対費用効果的で適切な患者へのケアを保証するために、医療専門家達に実践的なガイドラインを集め、保存し、情報提供し、その使用を促すために使われています。

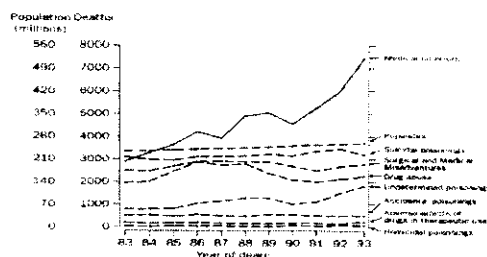
このシステムの訓練を受けた薬剤師は他の臨床薬剤師以上に多くの医師に良い影響をあたえていくという責任があるようです。

患者の年齢や体重を使って、薬物選択を見なおし手を加えていきます。薬物がオーダーされた瞬間、起こりうる相互作用がスクリーンに示され、さらに適当な薬剤の選択がおこなわれます。

特別な薬物の選択の時には、しばしば画面がとび立て来てその投与量決定を助けます。薬剤やその投与量選択のページはコンピューターシステム専門の薬剤師が管理しています。

アメリカの病院で起こっている有害事象の最近の動向に相反するためにはこのような情報の利用は必須です。

Medication Error Deaths per Year in the United States 1983-1993

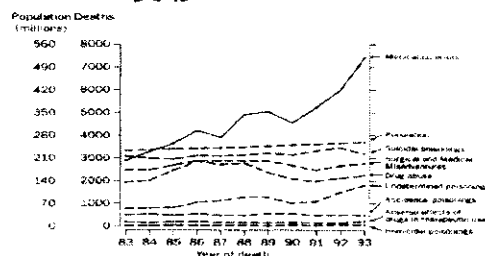


Lancet 1998; 351:643-4
Arch Intern Med 2000; 160: 3189

This graph demonstrates the influence of the increase in medication use to the incidence of medication errors in the United States.

As can be seen by the graph, the incidence of poisonings adverse effects of drugs when used as prescribed did not change significantly in the ten year period from 1983 to 1993. Medication errors, however, which involves the use of incorrect drug selection or use has increased significantly.

アメリカでの医療過誤による死亡数 変移 1983-1993

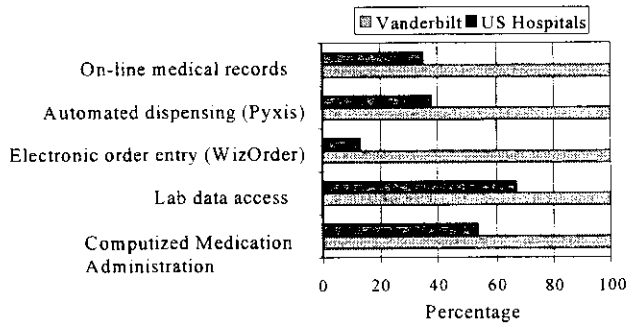


Lancet 1998; 351:643-4
Arch Intern Med 2000; 160: 3189

このグラフはアメリカでの医療品の使用が高まると共に、過誤も多くなることを示しています。

グラフからわかるように中毒事象や有害事象は1983年から93年の10年間であまり変化していません。しかしながら、不適正な薬剤選択と使用を含んだ医療過誤は、大きく増えています。

Computer Support Available at Vanderbilt and other US Hospitals



A number of advanced informatics systems are available at Vanderbilt Hospital in Nashville, Tennessee.

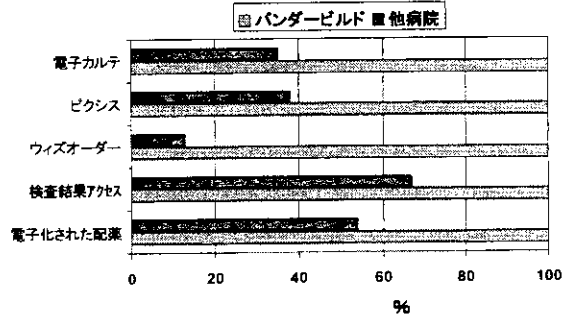
Medical records are available through secured computer files for all patients who have been seen in Vanderbilt Hospital in the past 5 years.

A Pyxis machine, which is an automated drug dispensing device, assists in making the correct drug available at the time of ordering in the patient care unit. With the exception of drugs used in emergencies, the Pyxis machine will not give access to medications which are not ordered for that patient, reducing the possibility of error.

Electronic order entry is now available for all patient care areas of the hospital. On admission, physicians can enter all orders needed for the care of the patient directly into the computer. Drug orders are transmitted automatically to the pharmacy for review and modification if needed. These ordered drugs are then entered into the patient's Medication Administration Record (MAR) to allow charting of doses administered by nurses.

In addition to past medical records, the most recent clinical laboratory records are also available directly on request. Warnings will be given if a lab value suggests that a drug should be avoided, or drug dosage modified, based on the most recent clinical lab measurements

バンダ-ビルド、他病院におけるコンピューター使用率



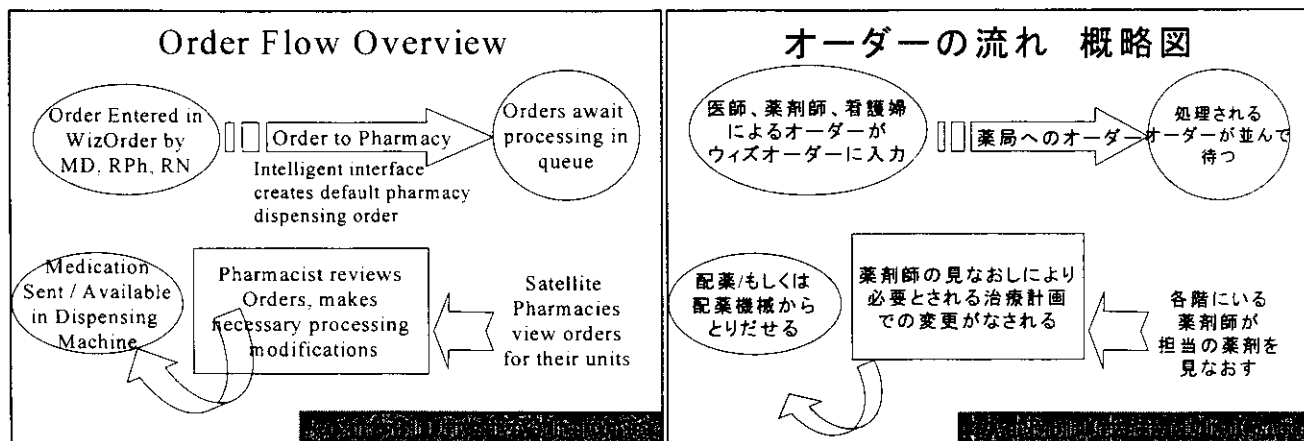
バンダ-ビルド病院では多種の情報システムが利用可能です。

過去5年間のバンダ-ビルド病院の患者のカルテが保護されたコンピューターファイルにて閲覧可能です。

ピクシス機は自動薬剤払い出し機で、病棟で必要なときに正にその薬剤を使えるよう支援しています。緊急時に使われる薬剤以外にピクシス機はその患者にオーダーされていない薬剤を取り出せないようし、起こりうる過誤を防いでいます。

全ての病棟で、電子オーダー入力が可能です。入院時、医師はコンピューターに全てのオーダーを入力できます。オーダーは薬剤部に送られ、見なおされ、もし必要なら手が加えられます。それからこれらのオーダー薬剤はMAR（病棟にある看護婦用の薬剤投与記録表）に加えられます。

過去の薬歴に加え、最も最近の検査値も請求により利用可能です。最も最近の検査値いかんでは薬剤オーダー時に警告がされたり、投与量変更が行われます。



This diagram shows the process used by a health care professional in entering an order into the Vanderbilt Patient Order Entry system, which is nicknamed "WIZ".

After a drug is order by a physician, nurse or pharmacist, the order is directly transmitted to the pharmacy for review. The pharmacist in charge of reviewing orders for the unit insures that the order is appropriate, then passes this information to a pharmacy based system. This pharmacy system allows the drug to be available immediately in a dispensing machine on the patient's unit, and insures that future drug supplies are available through a daily unit dose machine in the central pharmacy.

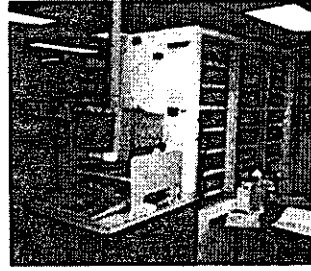
この表は医療スタッフによって使われるバンダ-ビルド病院のウィズと呼ばれるオーダー入力システムの流れを表わしています。

医師、薬剤師、看護婦によってオーダーが入力された後、見なおしのために直に薬剤部に送られます。そのオーダーが適切であると薬剤師によって確認された後、この情報は薬剤部独自のシステムに送られます。このシステムにより、病棟で払いだし機からほしい薬剤を即時に使えるようになっており、近々使用の薬剤は薬剤部本部から1日単位の調剤機より払い出されます。

Automatic Dispensing Machine
Activated by Pharmacy Computer



Pyxis Machine
on Patient Unit

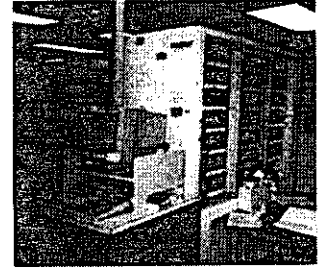


ATC 212 machine
used in daily cart fill

薬局のコンピューターで管理されている
自動配薬機



各階にある
ピクシス



患者カセットを調剤
するATC 212

These are pictures of two automatic drug dispensing machines currently in use at Vanderbilt hospital.

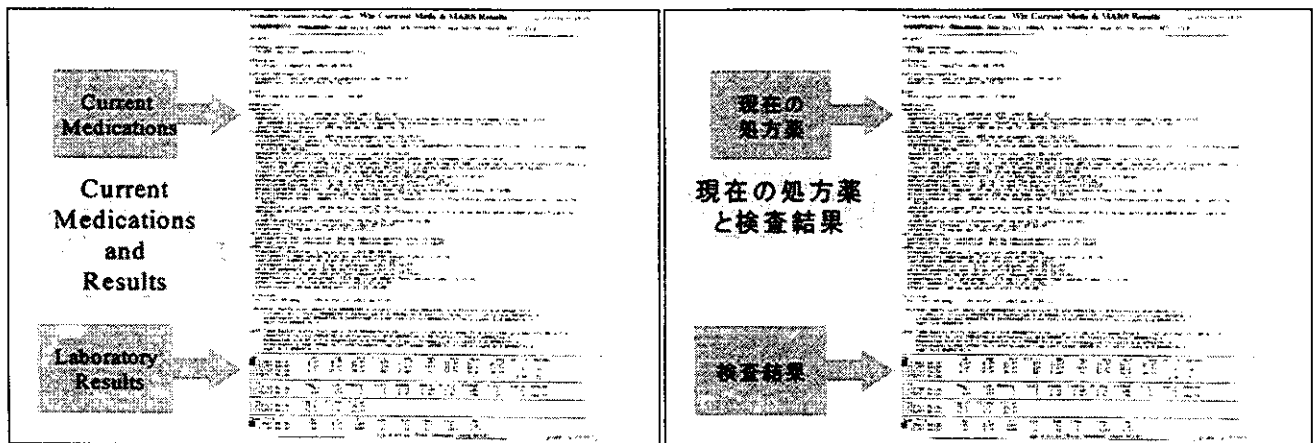
The Pyxis machine, shown at the left available in the patient care area near the nursing station. The Pyxis machine is an automatic dispensing machine which can provide drugs which have been ordered for the patient. The nurse can review ordered drugs for a particular patient, and uses a password to document who has retrieved the drug. Drug administration and access for drugs of abuse can be monitored using this system.

the ATC 212 system is currently used at Vanderbilt to prepackage unit-dose medications for a daily supply of oral tablets and capsules. The list of medications to be packed is retrieved directly from the pharmacy computer records for each patient.

これらの写真はバンダ-ビルド病院で現在使われている2つの自動調剤払い出し機のものです。

左の写真、ピクシス機は看護婦の詰所付近にあります。看護婦はオーダーされた薬剤を患者毎に見なおし、パスワードを使って、誰が薬を払い出したかを記録します。このシステムを使って、薬物投与状態や、薬物濫用が監察されます。

ATC212システムは錠剤やカプセル用のパッケージ機で現在バンダ-ビルドで使用されています。薬局のコンピューター内の各患者の薬剤リストの情報が直に機械に送られます。

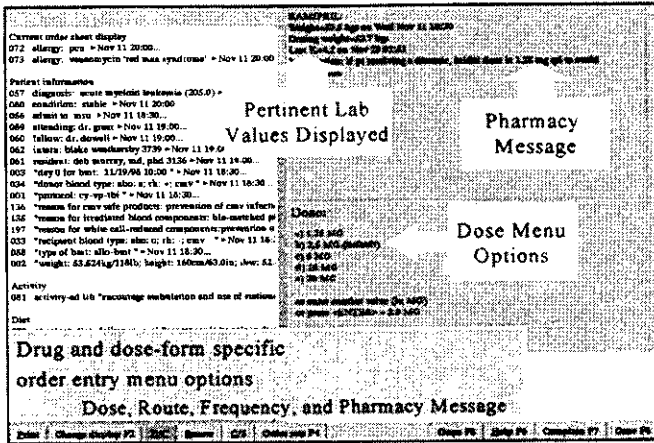


This is an example of the computer printout which is available to physicians on demand for patients in Vanderbilt Hospital. The two page printout lists the patient name, diagnosis, current orders and medications, and clinical laboratory results on the first page. The second page of the printout lists results of medical tests and admission and history notes entered by the physician.

A copy for each of these sheets is usually printed prior to daily medical discussion groups called "rounds". During these patient care "rounds", the most important clinical details needed to care for the patient are immediately available.

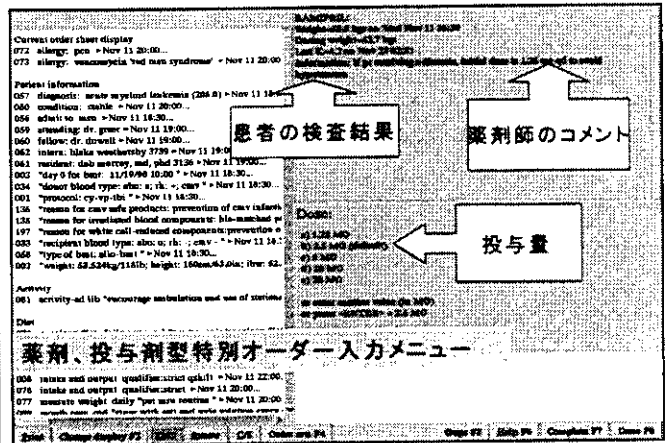
バンダ-ビルド病院で医師が必要時に利用できる情報で、コンピューターから打ち出したものです。2ページに渡って患者の名前、診断、現在のオーダー、薬剤、臨床検査値が載っています。2ページ目には医師の打ちこんだ検査結果、入院時や病歴の記録がのっています。

ラウンドという毎日の回診まえに、通常これが印刷されてきます。ラウンド中に最も必要なこれらの患者情報がすぐに利用できるわけです。



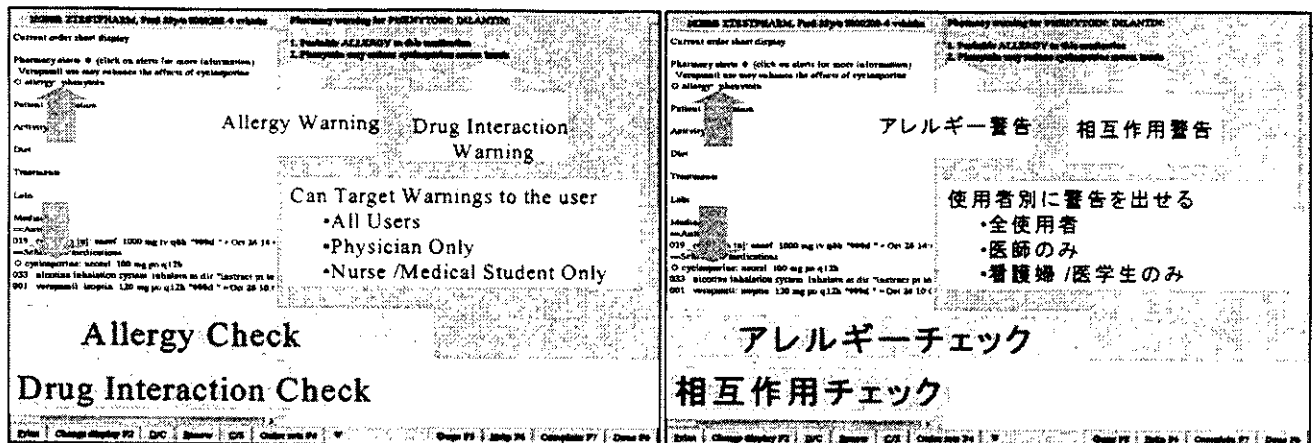
When a drug is initially ordered, current pertinent lab values, messages from the pharmacy, and dosage options are displayed.

In this example, a new order for ramipril in a patient displays the value for serum potassium, which can be increased with ramipril use. An additional message displays a message suggesting that the dosage of the drug be limited in patients receiving concurrently receiving a diuretic. Available dosage options are displayed, and a default value, which is determined to be most appropriate for a patient with these characteristics, is displayed.



薬剤が始めにオーダーされた時、検査値や薬局のメッセージ、投与量選択画面が示されます。

この例ではラミプリルがオーダーされ、患者のカリウム値が出されています。ラミプリルによってK値は上昇するからです。他のメッセージでは利尿剤併用の患者では投与量が制限されるということが示してあります。投与量選択ではその患者で適した投与量やそうでないものを掲げています。



WIZ order entry can also assist physicians if the patient's medical record includes information on a possible allergy to one or more of the medicines entered.

In this example, a patient who has a documented allergy to phenytoin causes the allergy warning to appear. In order to proceed with entering this order, the physician must respond to the text with the response that is should be ordered anyway.

Drug interaction warnings are also displayed by the computer in this manner. In this example, a warning that the effect of phenytoin will reduce serum concentrations of cyclosporine is displayed. If desired, these warnings can also be bypassed by the physician, but they must be acknowledged before the order is entered.

Informatics pharmacists are responsible for entering and maintaining computer logic which is displayed by the WIZ order entry system.

ウィズオーダー入力段階でも、アレルギーなどの患者記録を参照可能にして医師支援をしています。

もし患者にフェニトインのアレルギーがあれば警告として現れます。医師の方でフェニトインをそれでも投与したいときはその理由を文章にて書きこむとオーダーできるようになります。

薬物相互作用の警告もこのようにスクリーンに現れます。フェニトインの例ではシクロスポリンの血中濃度を低下させる警告がでています。望まれる場合はこれらの警告は出ないようにすることも出来ますが、オーダーが入力前に設定しなければなりません。

情報提供専門薬剤師はウィズ入力システムで示されるコンピューター論理をを上手に入力、維持していく責任があります。努めなければなりません。

cyclosporine emulsion **Pharmacy Monograph**

Formulary Information
 VUMC pharmacy suggested dosage range limits

Hyperlinks to AHFS Patient Education

Dose Information

Abbreviated Drug Information

Average of 21 requests per day

△ The following information does not apply to pediatric patients

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 VUMC pharmacy suggested dosage range limits

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cyclosporine emulsion **薬局発行モノグラフ**

採用状態

投与量情報

AHFSの患者教育にリンク

省略化された薬物情報

平均21日の問い合わせ

△ The following information does not apply to pediatric patients

採用状態

投与量情報

AHFSの患者教育にリンク

省略化された薬物情報

平均21日の問い合わせ

△ The following information does not apply to pediatric patients

During order entry, detailed drug information on any ordered drug is available on request.

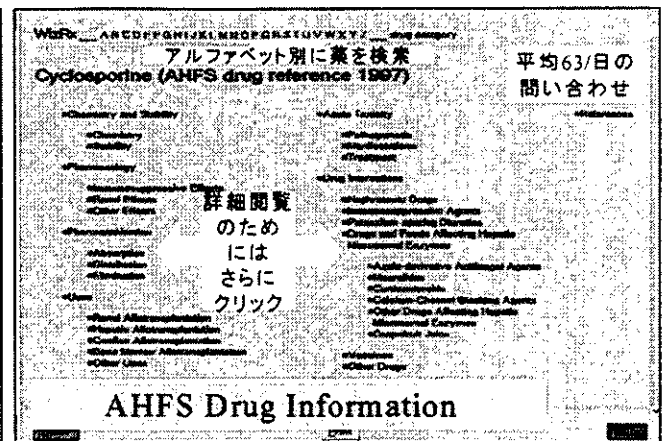
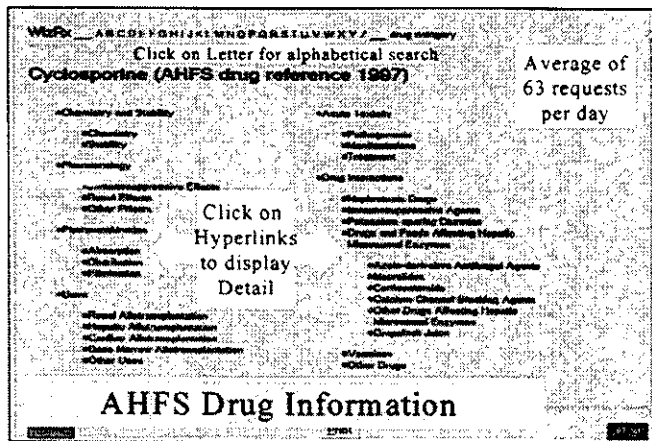
An informatics trained pharmacist maintains computer files which lists a many sources of important drug information. On this screen, the formulary status of the ordered drug is displayed. Dosage screening information and an abbreviated drug monograph written by and informatics pharmacist is displayed.

If desired, additional drug information details can be displayed, as is shown in the next slide.

オーダー中に詳細の薬物情報が要求されれば見られます。

情報専門薬剤師の方で医薬情報の数多くの情報源をコンピューターに保管しています。スクリーン上では、オーダーされた薬剤の採用状態を示しています。投与量や専門の薬剤師により、簡略化された薬物情報が利用可能です。

必要な場合は、次のスライドにあるように、詳細の薬物情報が示されます。

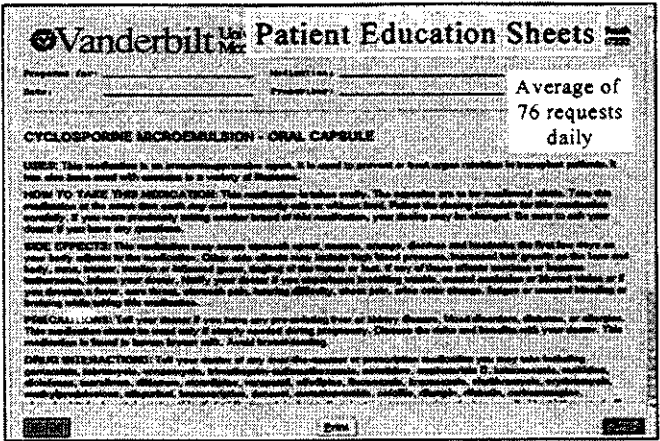


When desired, the details of the American Hospital Formulary Service (AHFS) are available to the ordering health care practitioner.

Vanderbilt purchases the services of the AHFS, which is considered an authoritative source of drug information, for use in the WIZ order entry system. The informatics trained pharmacist is responsible for maintaining the ability to “link” to desired information at the click of a computer mouse.

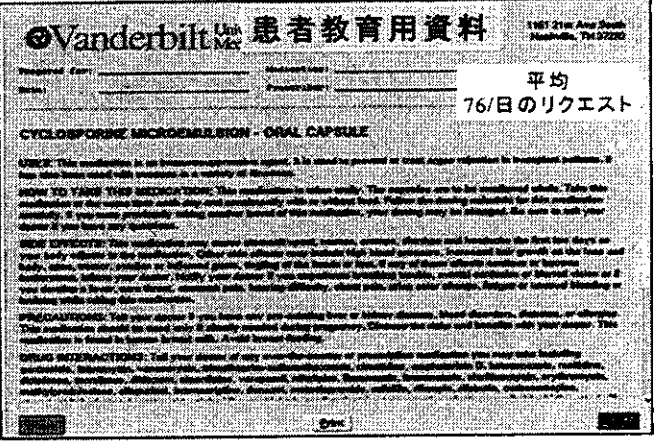
AHFSの薬物情報もオーダー時に利用できます。

バンダ-ビルドは情報の権威といわれるAHFSのサービスを購入してウィズの中で利用しています。マウスでクリックすることにより、欲しい情報に到達できるように情報訓練を受けた薬剤師は維持しています。



Patient information sheets are also available on demand to assist nurses and pharmacist with medication teaching.

Access to these sheets is made possible through hyperlinks maintained by an informatics pharmacist. Information contained in these sheets can be modified to be specific to Vanderbilt Hospital. In this example, the address and telephone number of the hospital pharmacy is printed on the sheet, so that the patient can call with any questions on the use of the medication after discharge.



患者情報用紙も看護婦や、薬剤師の教育をする薬剤師にとって有用です。

情報専門薬剤師によってこのような情報も利用可能な状態に管理されています。バンダビルド病院特有となるように情報は合わせられています。ここにある例では、薬剤部の住所と電話番号が入れられ、患者が退院後、薬の使用について質問があれば電話をかけることができるようになっています。

Chemotherapy MAR

created by oncology pharmacists

- created directly from MD order
- pharmacist adds dispensing/administration instructions
- RN can print on patient unit on demand
- Prints entire MAR divided by day
- Premeds and Chemotherapy print only on day due

Chemotherapy Enhancements

化学療法 MAR

•オンコロジー薬剤師によって記述

•医師のオーダーをそのまま起用

•薬剤師は調剤、与薬方法などを追加

•看護婦は要求に応じて患者情報を印刷可能

•日毎のMARを印刷可能

•前処置薬、化学療法剤はその投薬日にしか印刷できない

化学療法剤の使用の改善

Prevention of inappropriate or incorrect orders in cancer chemotherapy can be the source of major toxicities and possible death. For that reason, orders for such drugs are handled using a more involved process.

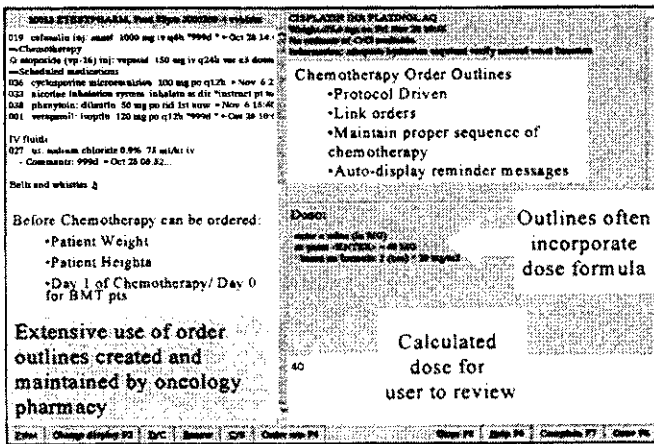
This slide presents details of the patient specific computer derived cancer chemotherapy Medication Administration Record (MAR). Use of this specific method for recording dosages of chemotherapy drugs decreases the likelihood of a medication error occurring.

The informatics trained pharmacist works in conjunction with the chemotherapy trained pharmacist to insure that no details are overlooked.

不適当なまたは不正な抗がん剤処方 を事前に防げば、薬物の毒性やそれによる死亡を防げるかもしれません。そのためにはこのようにオーダーにはさらに多くの過程が含まれます。

このスライドはある患者の詳細な抗がん剤投与計画表です。抗がん剤の投与量を記録する何らかの特別な方法があれば医療過誤の発生を減らすことができます。

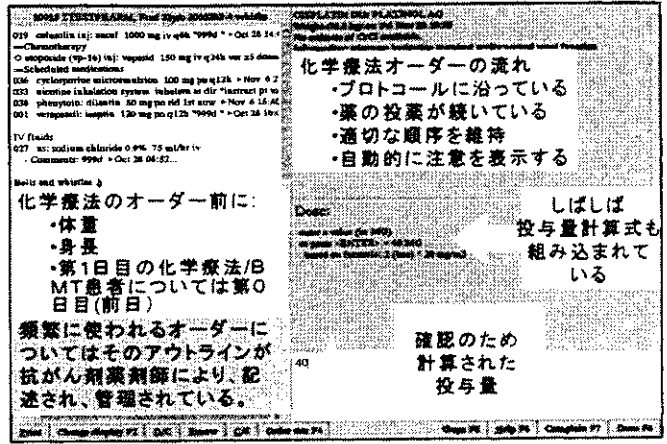
情報提供専門の薬剤師はどんな細かなことも見逃さないように抗がん剤専門薬剤師と共に働きます。



The most important method for reducing chemotherapy errors is shown on this order entry screen.

Before an order for cancer chemotherapy can be entered, the height and weight of the patient being treated must be entered. In addition, the first day of therapy must also be listed to insure that dosages are screen and scheduled appropriately.

Most cancer chemotherapy drugs are ordered through a defined protocol, which is the informatics pharmacist schedules to maintain appropriate scheduled sequences and dosage adjustment. Formulas used in calculation of dosage for each protocol are displayed for review.



抗がん剤療法の過誤を減らすために最も大切な方法がこのオーダー入力画面に示されています。

抗がん剤のオーダーが入力される前に患者の身長と体重が入力されなければなりません。加えて、治療の初日の投与量とスケジュールを確認できるよう並べられています。

殆どの抗がん剤が決められたプロトコルにのっとってオーダーされます。そのプロトコルは情報専門薬剤師により、適切な治療順序や投与量調整となるよう考え管理されているものです。各プロトコルにて投与量計算に用いられた式が確認できるように画面に示されます。

DDDD STREPTAFARM, Prod. Sp. No. 3002200-4 - White

CISPLATIN INJ. PLATINOL AQ
Platinum, 5.281 mg/ml

Enhanced dose range check

- single dose
- daily dose
- dose per cycle

EISPLATIN INJ. PLATINOL AQ
400 mg IV every 24 hours for 5 doses starting on Monday

One dose of 400 mg = 5.281 mg/kg/dose = 200 mg/m²/dose
Daily dose: 400 mg/24h = 5.281 mg/kg/24h = 200 mg/m²/24h
Total dose for the cycle (5 days): 2000 mg/cycle = 20.4 mg/m²/cycle

DOSE RANGE CHECKING

33 years old male, weight 75.750 kg, height 186 cm, BSA 2.00 m²
Dosing weight 75.750 kg, dosing BSA 2.00 m²

Recommended dose for age less than 63 years: 15 to 120 mg/m²/24h

T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
I	O	O	O	O	O	H	H	I	I	G	G	H	H	H	H	I	G	H	H
I	O	O	O	O	O	H	H	I	I	G	G	H	H	H	H	I	G	H	H
I	O	O	O	O	O	H	H	I	I	G	G	H	H	H	H	I	G	H	H
T	O	O	O	O	O	H	H	I	I	G	G	H	H	H	H	I	G	H	H

DRUG MONOGRAPH

Indications: palliative therapy for metastatic testicular cancer in approved combination therapy. Single agent use is reserved for palliative therapy for transitional cell bladder cancer unresponsive to radiation.

Dose: iv: consult published protocols for combination therapy. Usual dose for testicular: 20mg/m² iv for 5 days, may be used as a single agent here 100mg/m² once every 4 weeks. Bladder cancer: 50mg/m² iv every 3-4 weeks. Never more than 120mg/m² per course of 5 days.

Notes: side effects include renal toxicity (dose related and hydrate patient before and during infusion of dose. Ototoxicity and high range frequency loss. Marked nausea and vomiting occur.

Print Two copies Done Page up Page down P7 Case 70

DDDD STREPTAFARM, Prod. Sp. No. 3002200-4 - White

CISPLATIN INJ. PLATINOL AQ
Platinum, 5.281 mg/ml

**強化されている
投与範囲チェック**

- 単回投与
- 毎日投与
- サイクルで投与

EISPLATIN INJ. PLATINOL AQ
400 mg IV every 24 hours for 5 doses starting on Monday

One dose of 400 mg = 5.281 mg/kg/dose = 200 mg/m²/dose
Daily dose: 400 mg/24h = 5.281 mg/kg/24h = 200 mg/m²/24h
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DOSE RANGE CHECKING

33 years old male, weight 75.750 kg, height 186 cm
Dosing weight 75.750 kg, dosing BSA 2.00 m²

Recommended dose for age less than 63 years: 15 to 120 mg/m²/24h

T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
I	O	O	O	O	O	H	H	I	I	G	G	H	H	H	H	I	G	H	H
I	O	O	O	O	O	H	H	I	I	G	G	H	H	H	H	I	G	H	H
I	O	O	O	O	O	H	H	I	I	G	G	H	H	H	H	I	G	H	H
T	O	O	O	O	O	H	H	I	I	G	G	H	H	H	H	I	G	H	H

DRUG MONOGRAPH

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Notes: side effects include renal toxicity (dose related and hydrate patient before and during infusion of dose. Ototoxicity and high range frequency loss. Marked nausea and vomiting occur.

Print Two copies Done Page up Page down P7 Case 70

For cancer chemotherapy agents which are ordered out of protocol, an expanded dosage range checking program is entered by the informatics pharmacist after consulting with the oncology drug specialist.

The maximum single daily dose, and maximum dose allowed for each cycle of therapy can be displayed. IN this instance, an order for an excessive dose is displayed, along with information on appropriate dosing information for the drug which is ordered.

プロトコール外の抗がん剤がオーダーされた時のために、腫瘍治療専門の医師と情報専門薬剤師が相談して、投与量範囲チェックシステムを作り導入しました。

各治療期間で使われる1日最高投与量、1サイクルでの総合最高投与量が示されています。この例では過量の投与量がオーダーされたため、そのことと共に適切な投与量が示されています。

Web-Page Based Information

- Created and maintained by pharmacy
- Easy to build
- Update web-pages quickly
- Simplify order entry for complex orders
- Can link to order pathway in WizOrder from web page

ウェブページの情報

- 薬局により制作,維持されている
- 構築しやすい
- 素早く更新できる
- 複雑なオーダーを単純化できる
- ウィズオーダーにウェブからリンク

Web based information and ordering pages are maintained by the informatics pharmacist, often at the request of the P and T committee.

Such information web pages are relatively easy to create for a well trained informatics pharmacist. These pages can also be updated quickly, if needed.

Typically, a proposal to build a web page is sent to the informatics pharmacist who creates an initial page. Changes are made as requested.

One of the benefits of web pages of this type is that complex orders can be entered simply with little risk of error. Selecting a specific item on the web page can link a series of orders triggered by the WIZ order entry system.

しばしば薬事審議会のリクエストもあり、情報提供専門薬剤師により、ウェブページを使った情報やオーダー用のページが補修されています。

そのようなウェブページは専門薬剤師にとってみれば難しいことではなくむしろ簡単に、手早く更新されます。

典型的に行われるのは、ウェブページの構築案が情報提供専門薬剤師にだされ最初のページが作られます。変更もリクエストどおりにおこなわれます。

ウェブページの特典は複雑なオーダーも過誤のリスクを抑えながら簡単に入力できることです。ウェブ上である特定の項目を選択すればそれがウィズ入力システムの一連のオーダー画面にリンクします。

Protocol COG 5891 is an international cooperative group trial for the treatment of primary B-cell lymphomas. Children with primary B-cell lymphomas will be stratified into three different risk groups and receive treatment of prognostic intensity. Experimental arms in the two highest risk groups (B & C) will test whether reduced therapy will be equivalent to standard intensive therapy (LMB 85 B & C). The reason for stratification is to reduce the long term toxicity which includes neurotoxicity, impaired fertility and secondary malignancy.

Additional information: COG 5891 protocol on the NCCP web site and other protocols on the NCCP web site.

COG 5891	Group A	Group B	Group C
Primary Arms	Standard intensive therapy (LMB 85 A) only	Standard intensive therapy (LMB 85 B) only	Standard intensive therapy (LMB 85 C) only
Intensive Options	Standard intensive therapy (LMB 85 A) only	Standard intensive therapy (LMB 85 B) only	Standard intensive therapy (LMB 85 C) only
Treatment Schedule	COG 5891 (LMB 85 A) only	COG 5891 (LMB 85 B) only	COG 5891 (LMB 85 C) only
Order sets	orders for regimen A	COG orders COPADM orders CYN orders	COG orders COPADM orders CYN orders

Click Here to go to web site

Protocol COG 5891 is an international cooperative group trial for the treatment of primary B-cell lymphomas. Children with primary B-cell lymphomas will be stratified into three different risk groups and receive treatment of prognostic intensity. Experimental arms in the two highest risk groups (B & C) will test whether reduced therapy will be equivalent to standard intensive therapy (LMB 85 B & C). The reason for stratification is to reduce the long term toxicity which includes neurotoxicity, impaired fertility and secondary malignancy.

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Order sets	orders for regimen A	COG orders COPADM orders CYN orders	COG orders COPADM orders CYN orders

ウェブサイトに行くためここをクリック

This is an example of the use of a web page to make a complex task relatively error free.

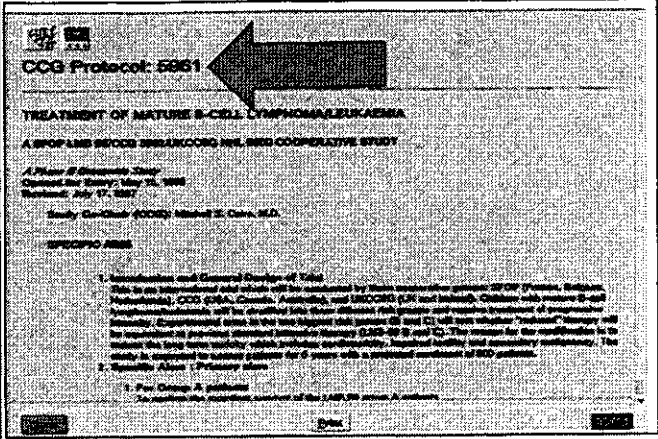
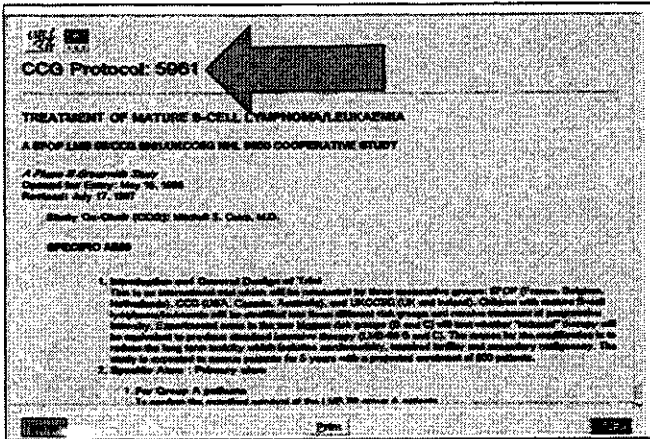
In this example, the protocol for administering a series of cancer chemotherapy drugs is "linked" based on the approved protocol. Clicking the mouse on any of the order sets highlighted in blue will order all necessary drug orders needed to treat the patient.

In this screen, several possible orders are displayed. To insure that the correct order set is selected, the physician can click the mouse on the blue text on the top of this screen. This will display the details of the protocol being ordered, as seen on the next slide

これは複雑な業務をウェブページ利用により、比較的安全に過誤なくすることができる例です。

ここでは一連の抗がん剤が承認されているプロトコールの画面にリンクされています。青い字で示されているオーダーセットをマウスでクリックすることにより、その患者に必要な薬剤を処方できます。

ここでは選択できるいくつかのオーダーが示されました。適切なオーダーセットが選択されることを確かにするために、医師はスクリーン上方の青い文字部分をクリックします。すると次のスライドに見られるようにプロトコールの詳細が映しだされます。



The details of the cancer chemotherapy protocol to be ordered is displayed on this screen. Following review of the details on this screen, the physician can be certain that the protocol to be ordered is appropriate for this patient.

Following review of this information, the screen can be closed, which returns the physician back to the order entry protocol choices.

これがそのプロトコールの詳細です。医師は細かい内容を見なおすことにより、オーダーされたプロトコールがこの患者に相当であることを確認できます。

見なおしの後はこの画面は閉じられ、プロトコール選択画面に戻ります。

Present COG S097 is an international cooperative group trial for the treatment of mature B-cell lymphomas. Children with mature B-cell lymphomas/leukemias will be classified into three different risk groups and receive treatment of progressive intensity. Randomized arms in the low/high risk groups (D-B, C) will test whether reduced therapy will be equivalent to previous standard intensive therapy (LMB 95 B & C). The reason for modification is to reduce the long term toxicity while maintain effectiveness, treatment facility and secondary malignancy.

Additional restrictions: COG S097 protocol on the NCOF web site and other protocols on the NCOF web site.

COG S097	Group A	Group B	Group C
Primary Arms	to compare children randomized to LMB 95 group A versus	to compare children randomized to LMB 95 Group B versus	to compare children randomized to LMB 95 Group C versus
Intensive Criteria	All patients who are 10 years of age or older	Age range 10-17 years	Age range 10-17 years
Treatment Schedule	COG COMPARE COGNOME 01-01, 01-02, 01-03, 01-04, 01-05, 01-06, 01-07, 01-08, 01-09, 01-10, 01-11, 01-12, 01-13, 01-14, 01-15, 01-16, 01-17, 01-18, 01-19, 01-20, 01-21, 01-22, 01-23, 01-24, 01-25, 01-26, 01-27, 01-28, 01-29, 01-30, 01-31, 02-01, 02-02, 02-03, 02-04, 02-05, 02-06, 02-07, 02-08, 02-09, 02-10, 02-11, 02-12, 02-13, 02-14, 02-15, 02-16, 02-17, 02-18, 02-19, 02-20, 02-21, 02-22, 02-23, 02-24, 02-25, 02-26, 02-27, 02-28, 02-29, 02-30, 03-01, 03-02, 03-03, 03-04, 03-05, 03-06, 03-07, 03-08, 03-09, 03-10, 03-11, 03-12, 03-13, 03-14, 03-15, 03-16, 03-17, 03-18, 03-19, 03-20, 03-21, 03-22, 03-23, 03-24, 03-25, 03-26, 03-27, 03-28, 03-29, 03-30, 03-31, 04-01, 04-02, 04-03, 04-04, 04-05, 04-06, 04-07, 04-08, 04-09, 04-10, 04-11, 04-12, 04-13, 04-14, 04-15, 04-16, 04-17, 04-18, 04-19, 04-20, 04-21, 04-22, 04-23, 04-24, 04-25, 04-26, 04-27, 04-28, 04-29, 04-30, 05-01, 05-02, 05-03, 05-04, 05-05, 05-06, 05-07, 05-08, 05-09, 05-10, 05-11, 05-12, 05-13, 05-14, 05-15, 05-16, 05-17, 05-18, 05-19, 05-20, 05-21, 05-22, 05-23, 05-24, 05-25, 05-26, 05-27, 05-28, 05-29, 05-30, 05-31, 06-01, 06-02, 06-03, 06-04, 06-05, 06-06, 06-07, 06-08, 06-09, 06-10, 06-11, 06-12, 06-13, 06-14, 06-15, 06-16, 06-17, 06-18, 06-19, 06-20, 06-21, 06-22, 06-23, 06-24, 06-25, 06-26, 06-27, 06-28, 06-29, 06-30, 07-01, 07-02, 07-03, 07-04, 07-05, 07-06, 07-07, 07-08, 07-09, 07-10, 07-11, 07-12, 07-13, 07-14, 07-15, 07-16, 07-17, 07-18, 07-19, 07-20, 07-21, 07-22, 07-23, 07-24, 07-25, 07-26, 07-27, 07-28, 07-29, 07-30, 07-31, 08-01, 08-02, 08-03, 08-04, 08-05, 08-06, 08-07, 08-08, 08-09, 08-10, 08-11, 08-12, 08-13, 08-14, 08-15, 08-16, 08-17, 08-18, 08-19, 08-20, 08-21, 08-22, 08-23, 08-24, 08-25, 08-26, 08-27, 08-28, 08-29, 08-30, 08-31, 09-01, 09-02, 09-03, 09-04, 09-05, 09-06, 09-07, 09-08, 09-09, 09-10, 09-11, 09-12, 09-13, 09-14, 09-15, 09-16, 09-17, 09-18, 09-19, 09-20, 09-21, 09-22, 09-23, 09-24, 09-25, 09-26, 09-27, 09-28, 09-29, 09-30, 10-01, 10-02, 10-03, 10-04, 10-05, 10-06, 10-07, 10-08, 10-09, 10-10, 10-11, 10-12, 10-13, 10-14, 10-15, 10-16, 10-17, 10-18, 10-19, 10-20, 10-21, 10-22, 10-23, 10-24, 10-25, 10-26, 10-27, 10-28, 10-29, 10-30, 10-31, 11-01, 11-02, 11-03, 11-04, 11-05, 11-06, 11-07, 11-08, 11-09, 11-10, 11-11, 11-12, 11-13, 11-14, 11-15, 11-16, 11-17, 11-18, 11-19, 11-20, 11-21, 11-22, 11-23, 11-24, 11-25, 11-26, 11-27, 11-28, 11-29, 11-30, 12-01, 12-02, 12-03, 12-04, 12-05, 12-06, 12-07, 12-08, 12-09, 12-10, 12-11, 12-12, 12-13, 12-14, 12-15, 12-16, 12-17, 12-18, 12-19, 12-20, 12-21, 12-22, 12-23, 12-24, 12-25, 12-26, 12-27, 12-28, 12-29, 12-30, 12-31		
Order sets	order set for regimen A	COG orders COG ADM orders COG V orders	order set for regimen C COG orders COG ADM orders COG V orders

Click Here to access order set in WizOrder

John Cunningham MD
June 15, 2007

Present COG S097 is an international cooperative group trial for the treatment of mature B-cell lymphomas. Children with mature B-cell lymphomas/leukemias will be classified into three different risk groups and receive treatment of progressive intensity. Randomized arms in the low/high risk groups (D-B, C) will test whether reduced therapy will be equivalent to previous standard intensive therapy (LMB 95 B & C). The reason for modification is to reduce the long term toxicity while maintain effectiveness, treatment facility and secondary malignancy.

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Order sets	order set for regimen A	COG orders COG ADM orders COG V orders	order set for regimen C COG orders COG ADM orders COG V orders

Click Here to access order set in WizOrder

John Cunningham MD
June 15, 2007

アクセスするための
ここをクリック

Following review of the protocol details shown on the previous slide, the physician can confirm that the specific drug protocol needed for this patient is appropriate.

Selecting the order set by clicking the mouse on the text in this box will order all necessary drugs and fluids in the appropriate sequent required by protocol.

前スライドで見た詳細をみながら、医師は選択した薬物プロトコールがその患者に必要であり、それは適切な判断であることを確認しました。

マウスで矢印で指されたオーダーセットをクリックすれば、必要な薬剤や輸液もプロトコールののってってオーダーされます。