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REVIEW ARTICLE

Brown, White and Blue Bagging in Special Pharmacy: An Emerging Trend to Minimize Medication Error

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Abstract

Advancement in the sector of specialized pharmacy evolved a new concept of bagging system beyond the scope of traditional pharmacy service. Managed care organizations (MCOs) bring up the healthcare system in the network where the services are made available for the betterment of treatment and secure documentation system for reimbursement. Certain models namely brown bagging, white bagging, and blue bagging system are promising models for this system. These models generally cover expensive and high-risk medication to minimize the wastage and related drug related problems. In these models, all the prescribed medications reach to the health professionals, which meticulously review all the medications before its administration. This potential system has several advantages over the conventional pharmacy practices, despite several advantages many associated risk and disadvantages are equally challenging. But it can be concluded that benefits are outweighing the risk associated with these models, which may have more impact on patient wellbeing. Hence, this system of special pharmacy service can be recommended in the scope of hospital pharmacy and pharmacy practice.

Keywords: *White bagging, Brown bagging, Blue bagging, Medication error, Patient safety.*

Introduction

Generally, physicians purchase medications, administer them to patients and billed the managed care organizations (MCOs) for reimbursement of the cost involved in treatment.

Recent and innovative models developed in a network have MCO members ordering and procuring the drugs from a specialized pharmacy that is required for the patients within their MCO's system and delivering the drugs to their clinician, agent, nurse, physician, hospital or any other qualified personals for administration. The practice of such relevant system evolved the new models known as "white bagging," "brown bagging" and "blue bagging."

Definition

"White bagging" can be defined as the dispensing of patient-specific/prescription-specific medication from a typical specialty pharmacy, to the physicians/practionars office, hospital, clinic or any other healthcare institutions in the white bag for administration. This model is most suitable when used in patients of oncology department and other autoimmune disease related patients to obtain and administer costly parentrals or infusible biological agents, harmones and medications that are dispensed by typical pharmacies, which are generally not available in regular dispensary and pharmacies.

"Brown bagging" can be defined as the dispensing of patient-specific/prescription-specific medication from a typically designed specialty pharmacy to a patient directly in a brown bag, the patient then takes the medication(s) to the clinic, nurse, physician, hospital or any other healthcare institutions for administration.

"Blue Bagging" can be defined as the process of medical review and medical reconciliation of a patient taking high-risk medication.

Specialty Pharmacy: Specialty pharmacy practice defined as the provision of specialty pharmaceuticals products, which require unique fulfillment and patient care support system and services [1, 4].

Implementation and Prevalence of "Bagging" Practices

- According to 2015 "Medical Pharmacy Trend Report," Analyzed data from fifty nine (59) health plans reveals that around 28% of the drug distribution and dispensing was done by the white and brown bagging system among 129.7 million individuals.
- The 2016 "Genentech Oncology Trend Report" of MCOs system shows that around 28% of the total drug distributed to the department of oncology was done by white and brown bagging system. The delivery was done either by mail or by retail from special pharmacies.
- According to "Zitter Health Insight's survey" it was revealed that almost 31% of parentrals and infusible in the cancer department were either fulfilled by either white bagging or patient brown bagging system. [1-4]

Blue Bagging

This is the dynamic initiative of pharmacist driven medication reviews of patients at high-risk for developing adverse drug events (ADEs) or patient taking high-risk medications. Pharmacist involvement in providing reliable, accurate and comprehensive medication reviews helps in minimizing adverse drug events (ADEs). This also improves chronic disease outcomes and may decrease hospital stay, hospital readmissions, and lower healthcare costs. Accurate and complete medication reconciliation is a part of blue bagging that can prevent numerous prescribing and administration errors [4].Process is illustrated in the table below.

Table 1: Steps involved in the blue bag system

Step 1	Gather the medication list, prescribed medications, over-the counter (OTC) medications, vitamins or minerals, herbal supplements, and natural products, and any lists of medications and vaccine.
Step 2	Place all the items in a blue bag and take to a healthcare professional.
Step 3	Pharmacists or physician assistant will help in completing an updated medication list. They review and ask how and when to take each medication and document that on the updated medication list.
Step 4	Always keep list and medications together during visits to doctor, pharmacist, hospital or any healthcare professional.

White and Brown Bagging

Some of the most common drug covered by this model is infusible chemotherapeutic and other adjuvant drug agents for cancer patients, similarly, medications used to treat autoimmune diseases like Crohn's disease (CD), rheumatoid arthritis (RA) and other disorders of a hematological system like blood coagulating factors, some vaccines, and immune-globulins. The substantial increase in approval of new molecules and novel indications of existing molecules became more challenging for MCOs. Before implementing such models, thorough Knowledge of system and proper evaluation is required to assess the model's feasibility whether this practice of bagging suits the organization. The MCOs must understand and calculate the advantages and consequences of brown bagging and white bagging models in hospitals, clinic, healthcare institutions, and other stakeholders [5, 8]. Process is briefed below.

Table 2: Steps in brown bagging

Step 1	Identify all the medicines which patients should bring to the hospital.
Step 2	Remind your patients to verify and bring all the medicines.
Step 3	Self preparation for the review of the drugs.
Step 4	Carryout the review of all medications in the correct manner.
Step 4	Clarify and explain all medicine related instructions.
Step 6	Document all the review in the proper documentation system.
Step 7	Provide the updated lists to the patients for clear and correct information
Step 8	Track Your Progress for a next/subsequent visit.

Why These Models

Dispensing pharmacists perform all clinical pharmacy activities like drug usage reviews, Finding for duplication of drugs in therapy, optimal dose selection, assessing possible drug-drug, drug-food interactions, providing education and counseling to the required patients, educating patients regarding possible side effects and adverse drug reaction, etc. Additionally waiting for inconvenient and longer time for reimbursement of the money involved in the drug is also omitted.

Overall the benefit of such models is improved patient care and patient safety. Medications administered to a patient are captured and analyzed routinely to detect the possible ADRs and side effects; this capturing system ensures more accurate accounting by a sophisticated system. Improved documentation procedures for medications are some secondary advantage, which provides more accurate insight into drug therapy.

This practice of brown bagging and white bagging may provide improved case management and also provides benefit to MCOs allowing greater control over special pharmacy. This special medication delivery system is promising in some of the medical department like oncology. Still it has greater significance in the reimbursement arenas as a part of health insurance policies. Physician**,** Pharmacists, patients, and reimbursement agencies all are having various advantages for practicing the bagging model in the healthcare system.

There is significant benefit from these models, such that it gives the pharmacist a better opportunity to utilize their knowledge to improve patient related outcomes including health related quality of life. Pharmacists can screen for duplicate drug, assess drug-drug and drug-food interactions, provide drug usage reviews, and can suggest any changes in the treatment regimen for the betterment of outcome. Pharmacists can also improve patient compliance by educational, counseling programs [5].

Physician perspective, These models have several benefits that come from these special drug distribution models are a reduction in physicians related costs (purchasing, procuring and stocking) involved in treating the patients. Third-party perspective, negotiated drug dispensing rates and increased clear and transparency in the drug distribution process are some of the benefits [2, 6].

Disadvantages

Despite several benefits for all parties, there are still some lacunas within these models that must be considered. Inconvenience in acquiring the drug before visiting the facility for drug administration, late receive of drug or inadvertently damaged during shipping via mail, brown and white bagging may interfere with the physician-patient relationship; the hospital may lose the expected revenue are some apparent disadvantages of these models.

Another obvious challenge is the requirement of special discarding then disposal process which can be costly and may require compliance with additional federal agencies. As mentioned previously, these models are always with consequences. Regulators must decide responsibility when there is delay in therapy and leads to unwanted outcomes in patients [3, 6].

Additional Factors for Considerations

Special handling techniques for drug considered in brown bagging and white bagging models should be continuously reviewed.

Such models require unique and special handling, such as maintenance of temperature and security during the drug delivery process. [4, 5]

Role of Pharmacists

Pharmacists have multidisciplinary roles in planning, implementing, evaluating and managing the white bagging and brown bagging programs. Due to their specialized knowledge in the pharmacy, they are in a unique position to communicate with their patients. Pharmacists involving and managing patients in these models should understand and calculate the affect of same programs on patients, healthcare institutions, pharmacies and third party payer involved complexly in the system.

They should assist in the patient's care by educating patients, monitoring for counterfeit pharmaceuticals, and should provide information to caregivers and patients regarding the advantages and disadvantages of this system. Hospital pharmacists may prepare medications in addition to the role of community pharmacy.

Managed Care Pharmacists role is to influence benefits in designing and to build a rapport with a network system that can support these models.

Recommendations

- The practice of "brown bagging model," is recommended in the scope of services provided by the pharmacy practice department in the hospital.
- The pharmacy is responsible for timely intimation and notification to patients and patient's relatives and other related personals if they have to administer the drug to the patient.

Conclusion

The practice of white bagging and brown bagging may emerge as a most efficient and efficacious model for providing required medications to patients with a minimal medication error and other drug related problems. This system encompasses the issue of patient safety, drug efficacy, and cost of medication with sufficient reimbursement.

Although there are several advantages and disadvantages of these bagging systems one can easily support or argue on the system, importantly the system outweighs the risk of possible drug related problem. Hence, the decision should be always oriented toward patient well-being.

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