Drug use evaluation (DUE) (drug utilization review)

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- Drug use studies using aggregate data or health facility indicators may indicate that there is over- or under-consumption of medicines, and qualitative studies may indicate why certain health staff and patients behave the way they do.

- Such details may concern incorrect medicine choices, incorrect dose, prescribing drugs that cause ADRs or drug interactions, and the use of expensive drugs when cheaper ones would do.
Drug use evaluation (DUE)

- A system of ongoing, systematic, criteria-based evaluation of drug use that will help ensure that medicines are used appropriately (at the individual patient level). If therapy is deemed to be inappropriate, interventions with providers or patients will be necessary to optimize drug therapy.

- A DUE is drug- or disease-specific and can be structured so that it will assess the actual process of prescribing, dispensing or administering a drug (indications, dose, drug interactions, etc.). DUE is the same as drug utilization review (DUR) and terms are used synonymously.
Medication use evaluation (MUE)

- Similar to DUE but emphasizes improving patient outcomes and individual quality of life; it is, therefore, highly dependent on a multidisciplinary approach involving all professionals dealing with drug therapy. An MUE will assess clinical outcomes (cured infections, decreased lipid levels, etc.).
Goal of a DUE or MUE

- To promote optimal medication therapy
- To ensure that drug therapy meets current standards of care.
- To create guidelines (criteria) for appropriate drug utilization
- To evaluate the effectiveness of medication therapy
- To enhance responsibility/accountability in the medicine use process
- To control medicine cost
- To prevent medication related problems, for example adverse drug reactions, treatment failures, over-use, under-use, incorrect doses and non-formulary medicine use
- To identify areas in which further information and education may be needed by health-care providers.
The steps of a DUE

- STEP 1 Establish responsibility
- STEP 2 Develop the scope of activities and define the objectives
- STEP 3 Establish criteria for review of the medicine
- STEP 4 Data collection
- STEP 5 Data analysis
- STEP 6 Feedback to the prescribers and making a plan of action
- STEP 7 Follow-up
STEP 1 Establish responsibility

- It is the responsibility of the Drug and Therapeutics Committees (DTC) to establish procedures for the implementation of a DUE program; this includes appointing a responsible member of the DTC or a subcommittee to monitor and supervise the DUE process in the hospital or clinics.

- Ideally the DTC should establish annual plans, outlining which medicines or clinical conditions will be a part of the DUE process.
STEP 2 Develop the scope of activities and define the objectives

- The DTC should decide upon the objectives of the DUE and the scope of the activities necessary.
- The scope can be very extensive or it can focus on a single aspect of drug therapy and will depend upon the type of problem identified, for example:
  - overuse of a more expensive medicine when a cheaper equivalent is available, as revealed in aggregate data
  - incorrect use (indication, dosage, administration) of a particular drug, as revealed in patient charts, medication error reports, ADR reports
  - inappropriate choices of antibiotic, as revealed in antibiotic sensitivity reports
  - a poor dispensing process, as revealed by patient complaints or feedback.
Due to the large number of medicines available at a hospital or clinic, the DTC must concentrate on those medicines with the highest potential for problems in order to get the most return on the work involved. These high-priority areas include:

- high-volume drugs
- expensive drugs
- drugs with a narrow therapeutic index
- drugs with a high incidence of ADRs
- critically important therapeutic categories, for example cardiovascular, emergency, toxicology, intravenous drugs, chemotherapy and narcotic analgesics
- antimicrobial drugs, prophylactic and therapeutic
- drugs undergoing evaluation for addition to the formulary
- drugs used for non-labelled indications
- drugs used in high-risk patients
- common clinical conditions often poorly treated.
STEP 3 Establish criteria for review of the medicine

- DUE criteria are statements that define correct drug usage with regard to various components such as:
  - uses: appropriate indication for drug, absence of contraindications
  - selection: appropriate drug for clinical condition
  - dosing: indication-specific dosing, intervals and duration of treatment
  - interactions: absence of interactions - drug-drug, drug-food, drug-laboratory
  - preparation: steps involved with preparing a drug for administration
  - administration: steps involved in administration, quantity dispensed
  - patient education: drug and disease-specific instructions given to patients
  - monitoring: clinical and laboratory
  - outcome, for example: decreased blood pressure, blood glucose, asthma attacks
STEP 3 Establish criteria for review of the medicine. Cont.

- Criteria for the use of any medicine should be established using the hospital’s standard Treatment Guidelines (STGs).

- In the absence of hospital STGs, criteria may be based on recommendations from national or other locally available satisfactory drug use protocols, other relevant literature sources, and/or recognized international and local experts. Credibility, and staff acceptance, of the DUE relies on using criteria that have been developed from reading established evidence-based medicine information from reputable sources and that have been discussed with prescribers.
Reviewing many criteria will make the DUE process more difficult, and may impair successful completion of the review. Therefore the number of criteria established for each medicine is often between 3 and 5. Once the criteria are established, thresholds or benchmarks are decided for each criterion in order to define the expectations or goals for compliance with the criteria. Ideally one would like 100% of all cases to comply with the criteria, but in reality this may not be possible, and a DTC might decide to set a threshold of 90-95% compliance below which they would instigate corrective action.
STEP 4 Data collection

- Data may be collected retrospectively, from patient charts and other records, or prospectively, at the time a medicine is prepared or dispensed. Retrospective data collection may be quicker and is best accomplished away from the patient care areas and distractions.

- Data must be collected from a suitable random sample of charts or prescription records from the health-care facility, usually selected by pharmacy personnel, but also by nurses or medical records personnel. The treatment of at least 30 patients, or 100 patients for common clinical conditions, should be reviewed per health facility or hospital. The larger the facility and the more practitioners, the larger the number of records needed for review and analysis.
STEP 4 Data collection..Cont.

- Data collection forms based on the criteria can be configured into simple ‘yes/no’ questions or may involve the filling in of open questions.

- Sources of data include patient charts, dispensing records, medication administration records, laboratory reports, ADR reports, medication error reports, antimicrobial sensitivity reports, and documented staff and patient complaints.
STEP 5 Data analysis

Data are tabulated in a form that corresponds to the criteria chosen for the DUE. The percentages of cases that meet the threshold for each criteria should be calculated and summarized for presentation to the DTC. A report of all DUE programs that are being conducted should be prepared on a quarterly basis.
STEP 6 Feedback to the prescribers and making a plan of action

- After information is presented (for example on inappropriate drug use or unacceptable patient outcome), the DTC should develop conclusions about the differences between actual and desired results.

- The DTC should then decide what follow-up action is necessary and whether to continue, discontinue or expand the functions of the DUE in question.

- Recommendations should include specific steps to correct any drug use problem that is evident from performing the DUE.
STEP 6 Feedback to the prescribers and making a plan of action...Cont.

- Interventions to improve drug use would include feedback to the prescribers and may also include:
  - education, for example letters, in-service education, workshops, newsletters, face-to-face discussions
  - institution of drug order forms
  - institution of prescribing restrictions
  - changing the formulary list and/or manual
  - changing the standard treatment guidelines
  - using another DUE or continuing the present one.
STEP 7 Follow-up

- In every DUE, follow-up is critical to ensure appropriate resolution of any problems.
- Did an intervention achieve its objective?
- If an intervention is not evaluated, or drug use problems are not resolved, then the DUE will have been of no use.
- As a part of a follow-up plan the DTC must assess the need to continue, modify or discontinue the DUE.
- Thus, DUE activities should be evaluated regularly (at least annually) and those that do not have a significant impact on drug use should be redesigned in order to provide measurable improvements.
- Common problems associated with DUEs include unclear responsibilities for different activities, poor prioritization of problems, lack of documentation, lack of personnel and inadequate follow-up.
- If follow-up is adequate, prescribers are likely to improve their performance in all areas knowing that they may be reviewed in the future!
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THANK YOU