

5.1 Medicine information service: definition and need

The medicine information service, called in many institutions the drug information service, is the organised service that provides evaluated, patient or situation specific information about medicines to healthcare professionals, and through them and directly to patients, in answer to specific enquiries. Its definition has three working parts: it answers questions, it does not merely supply data, so the answer is selected, evaluated and applied to the enquirer's actual case; it is independent, its answers resting on critical appraisal of sources and not on promotion or habit; and it is documented, every enquiry and answer entering the service record of Section 5.4. The need for the service is the information problem of modern therapeutics, and it should be argued as the syllabus expects. The number of medicines, formulations and published studies exceeds what any prescriber can hold or read unaided, and it grows continuously. New evidence and safety information appear faster than textbooks and habits change, so practice left to memory alone drifts behind the evidence. Medicines are used in patients the trials did not study, in pregnancy, in organ failure, in combination, off label, and each such use generates a question that only a searched and appraised answer can settle responsibly. And errors follow ignorance predictably: a large share of drug related problems are information problems at root, a dose not adjusted, an interaction not known, a formulation property not appreciated. The drug information pharmacist, trained in searching, appraisal and communication, exists to close that gap at the speed clinical decisions require. The service's users are prescribers first, then nurses, fellow pharmacists, other professionals, and patients and the public, commonly through the professionals caring for them.

5.2 Medicine information resources

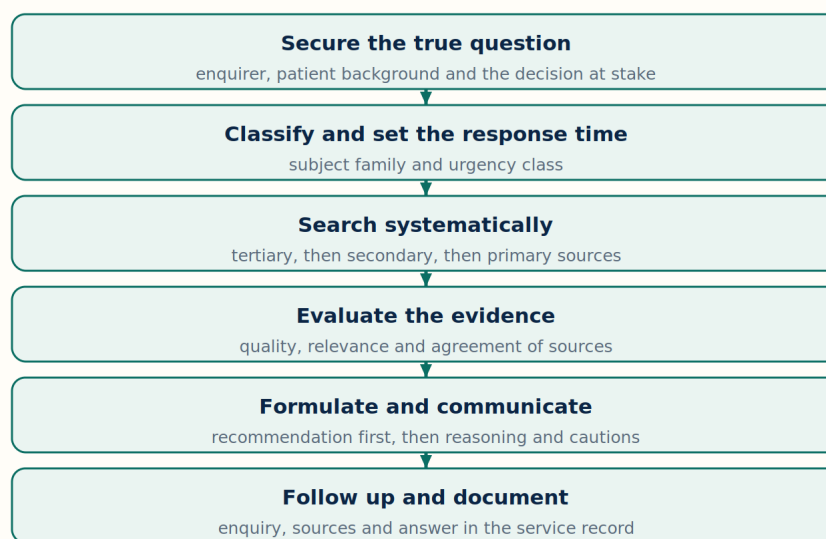
The drug information pharmacist works from a hierarchy of resources, and knowing the hierarchy, and when each level is the right place to stop, is the examined skill of this section. Primary resources are the original literature: published trials, observational studies, case reports and official regulatory documents. They are the most current and detailed source and the least digested, so they answer the questions the digested sources cannot, at the cost of the searcher's own appraisal, since a single study is evidence to be weighed and not a conclusion to be copied. Secondary resources are the indexing and abstracting services and bibliographic databases by which the primary literature is found: the searcher who cannot retrieve cannot appraise, and competence in constructing a search and following citations is a core service skill. Tertiary resources are the digested references in which evaluated knowledge is compiled for direct use: standard textbooks, drug compendia, national and hospital formularies, product information issued for each medicine, therapeutic guidelines from professional and national bodies, and the specialist references devoted to the recurring question families, medicines in pregnancy and lactation, in renal and hepatic impairment, interactions, compatibility of injections, and poisoning. Two disciplines complete the section: currency, since the centre maintains its references updated and knows the date of every source it relies on, and scepticism toward the unrefereed and the promotional, including much internet material, which is used, if at all, as a lead to evaluated sources and never as the answer's authority.

5.3 Systematic approach in answering medicine information queries

The systematic approach is the service's method, taught as a sequence of steps in the standard texts, and it is the single most examinable process in this unit. First, secure the enquirer's details and the true question: who is asking, in what role, for what patient or situation, and what decision the answer will inform, since the question as first phrased is often different from the question that needs answering, and background questions about the patient, the medicines already tried and the urgency are part of this step. Second, classify the enquiry, by subject family, dose, interaction, adverse effect, pregnancy, identification, compatibility and the rest, and by urgency, which sets the promised response time. Third, conduct a systematic search, beginning in the tertiary resources and proceeding through the secondary to the primary literature as the question requires, by the hierarchy of Section 5.2. Fourth, evaluate the information found: the quality of the studies, their relevance to this patient, their agreement with each other, and the strength of what can honestly be concluded, including the conclusion that the evidence is thin, which is itself an answer the enquirer needs stated plainly. Fifth, formulate the response, applying the evaluated evidence to the enquirer's case, recommendation first where a decision is waiting, reasoning and evidence after it, with cautions and monitoring. Sixth, communicate the response in the form the urgency requires, verbal, written or both, by Section 5.4. Seventh, follow up and document: confirm the answer was received and understood, learn what was decided, and file the enquiry, sources and answer in the service record.

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The systematic approach to a medicine information query
  Secure the enquirer, the patient and the true question
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      v
  Classify the enquiry and set the response time
      |
      v
  Search: tertiary, then secondary, then primary sources
      |
      v
  Evaluate the evidence for quality and relevance
      |
      v
  Formulate the answer for this enquirer's decision
      |
      v
  Communicate verbally, in writing, or both
      |
      v
  Follow up and document in the service record
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Answering a medicine information query



In an urgent query the steps are compressed, but none is dropped

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Figure: The systematic approach as a flow. Clarification comes before searching, and documentation closes every query, urgent or routine.

5.4 Preparation of verbal and written response

The response is the service's product, and its preparation follows rules that differ by form while its content standard is one. The verbal response is used where the decision is urgent, where the enquirer is present or on the telephone, and as the first instalment of a fuller written answer; it is delivered in a structure the listener can act on, recommendation first, key reasons and evidence in brief, cautions and monitoring, and the offer of written confirmation, spoken at the listener's pace with understanding checked, since a verbal answer cannot be reread. The written response is the considered form, used for complex, non urgent and formally referred questions, and it is built to a standard anatomy: the question as understood and the background on which the answer rests; the answer itself, stated early and unambiguously; the evidence and reasoning, with sources named and their quality characterised; the application to the enquirer's patient or situation, including alternatives where the first answer cannot be used; and the reservations, what is not known and what would change the answer, with the responder's name, date and references completing the document. Style is a professional matter in both forms: plain precise language, no promotional phrasing, quantities and names checked twice, and the distinction between established fact, inference and the responder's recommendation kept visible, because enquirers act on these documents and patients carry the consequences.

5.5 Establishing a drug information centre

Establishing a drug information centre is the organisational task that converts the method of the last three sections into a permanent service, and the syllabus examines it as a plan with defined components. The case for the centre is made first, to the institution's management and pharmacy and therapeutics structure: the need argued from the questions already reaching pharmacists informally, the medication safety the service supports, and the measurable outputs it will report. Place and staffing follow: the centre is housed within or beside the hospital pharmacy, in a quiet workspace suited to searching and uninterrupted telephone work, staffed by pharmacists trained in drug information method, with defined cover for its advertised hours and a clear route for urgent queries outside them. Its resources are assembled by the hierarchy of Section 5.2, core tertiary references and formulary material first, database and journal access

as the budget allows, with the standard enquiry forms, response formats and record system that make the systematic approach the path of least resistance. Its procedures are written before it opens: how enquiries are received and logged, response time standards by urgency class, response formats, the documentation rule, and the quality assurance by which a sample of answers is peer reviewed and activity and user satisfaction are reported. Its launch is an act of communication as much as organisation: prescribers and nurses are told what the service answers, how to reach it and what background to supply with a query, and early users are followed up so the first answers advertise the service by their quality.

5.6 Poison information service: definition and need

The poison information service is the organised service that provides immediate, expert advice on the management of poisoning, to healthcare professionals treating a poisoned patient and, in many systems, directly to the public at the moment of exposure. Poisoning here covers the whole field the service answers for: medicines taken in overdose or in error, household and industrial chemicals, pesticides, venomous bites and stings, poisonous plants and substances of abuse, in adults and in children, accidental and deliberate. The need is argued from the character of poisoning itself. Poisoning is common, and its first management decisions are time critical: whether to decontaminate, whether and which antidote to give, whether the patient can be observed safely or must be transferred to intensive care, all turn on identifying the agent, the amount and the time since exposure, information the treating team at a general hospital cannot be expert in across thousands of possible agents.

5.7 Poison information centre: organization and functions

A poison information centre is the unit that delivers the poison information service, and its organisation follows from the tempo of its work. It operates continuously or to the fullest hours its system can sustain, since poisoning keeps no office hours, and it is reachable by a widely publicised telephone route, staffed by specialists in poison information, pharmacists prominent among them in the Indian centres as internationally, working to medical toxicology direction and with immediate access to the centre's information resources. Those resources are its defining equipment: evaluated databases and references on the toxicity and management of medicines, chemicals and natural toxins, product information by which a named household or industrial product is resolved into its actual ingredients, and the centre's own case records, in which previous exposures and outcomes accumulate into local knowledge no book contains. Its functions, which the examination answer should list as functions, are these. It provides immediate risk assessment and management advice by telephone, agent, amount, time and patient being established by structured questioning and the advice matched to the caller's setting, hospital or home. It supports the treating hospital through significant poisonings, advising on investigations, antidotes and their availability, monitoring and the expected course, and helping locate scarce antidotes through its network. It documents every call contemporaneously, building the surveillance record. It analyses that record and reports patterns to public health authorities, regulators and manufacturers, where a product or a local practice is generating poisonings. And it educates: training healthcare staff in the first management of common poisonings, and informing the public about prevention, safe storage and the centre's own number.

The poison information centre



Immediate advice is the visible function; the record it leaves behind prevents the next case

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Figure: The poison information centre and its functions. Immediate advice is the visible function; documentation, surveillance and education are what the advice leaves behind.

Frequently Asked Questions

Q: What is clinical pharmacy, and how does it differ from traditional pharmacy practice? Clinical pharmacy is the branch of practice in which the pharmacist works directly with patients and the healthcare team to ensure medicines are used safely, effectively and appropriately for the individual patient. Traditional practice is organised around the product: procurement, compounding, dispensing and distribution. Clinical pharmacy is organised around the patient and the outcome of therapy, and adds review, monitoring, information and counselling to supply. See Sections 1.1 and 1.3.

Q: What is pharmaceutical care, and how is it different from clinical pharmacy? Pharmaceutical care is the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient's quality of life, in the classic Hepler and Strand formulation. Clinical pharmacy names the discipline and its services; pharmaceutical care names the philosophy and outcome responsibility those services serve, worked as a cycle of assessment, problem identification, care plan and evaluation. See Section 1.6.

Q: What does the pharmacist do on a ward round, and how is the work organised? The pharmacist prepares by reviewing charts and case data and prioritising drug related problems, contributes on the round by answering drug questions and raising interventions briefly with the problem, the evidence and a specific alternative, and follows up by verifying agreed changes, answering outstanding queries and documenting interventions the same day. See Section 1.8.

Q: What is drug therapy review, and what are its components? Drug therapy review, or drug therapy monitoring, is the systematic examination of a patient's whole drug therapy against the patient's clinical condition, checking every medicine for indication, suitability, effectiveness, safety and actual use. Its components are medication order review, chart endorsement, the pharmacist's recorded confirmation on the treatment chart, and clinical review, the deeper assessment of therapy against clinical progress, from which interventions arise. See Sections 1.9 to 1.12.

Q: What should a complete medication history contain? Currently prescribed medicines with dose form, frequency, duration and understood indication; over the counter medicines; herbal and traditional products, asked for by name; intermittent and non oral medicines such as inhalers and topical products; recent changes; allergy and previous reaction history with the reaction described; adherence as actually practised and its reasons; and the practical context of who administers medicines and any difficulty in using them.

See Section 2.1.

Q: What is pharmacovigilance, and what is the pharmacist's chain of work when a reaction is suspected? Pharmacovigilance is the detection, assessment, understanding and prevention of adverse effects and other drug related problems, necessary because trials cannot reveal rare, delayed or group specific effects before marketing. The bedside chain is: suspect from the symptom or result and the medication timeline, document fully, assess causality in a structured way, act with the prescriber to stop or replace the medicine where required, and report through the hospital into the national programme. See Section 2.3.

Q: How do haemovigilance, materiovigilance and AEFI differ from pharmacovigilance? They are the matched vigilance systems for other products. Haemovigilance covers blood and blood components across the transfusion chain, built on donor to recipient traceability. Materiovigilance covers medical devices, whose characteristic events are failures and use errors. AEFI surveillance covers adverse events following immunisation, which need not be caused by the vaccine and are investigated to separate product, error, anxiety and coincidental causes. All four share structured reporting, causality assessment and signal detection. See Section 2.4.

Q: What are the stages of drug utilisation evaluation? Selection of a medicine or problem, usually for high risk, high cost, high volume or suspected misuse; criteria for appropriate use written in advance from accepted evidence; data collection on a defined sample; comparison of actual use against the criteria; report to prescribers and the pharmacy and therapeutics structure with proposals for action; and repetition after the action to confirm improvement. The exercise addresses the system of use, not blame. See Section 2.6.

Q: How are laboratory results interpreted in clinical pharmacy practice? In a fixed order: against the reporting laboratory's own reference interval; as a pattern across the panel and as a trend over time; against the patient's symptoms, examination and diagnosis; against the drug therapy, since medicines cause laboratory change as effect and as adverse effect and can interfere with assays; and with pre analytical cautions in mind. The pharmacist flags results that change the safety or efficacy of current therapy. See Section 3.6.

Q: What is the systematic approach to answering a medicine information query? Secure the enquirer, the patient and the true question; classify the enquiry and set the response time; search systematically, tertiary sources first, then secondary, then primary literature as required; evaluate the evidence for quality and relevance; formulate the answer for the enquirer's decision; communicate it verbally, in writing or both; and follow up and document the enquiry, sources and answer in the service record. In urgent queries the steps are compressed but none is dropped. See Section 5.3.

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