

Current Infectious Disease Reports

Defining international critical care pharmacist contributions to sepsis and exploring variability

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Online Resource 3 (Supplementary Table). An overview of themes, sub-themes and codes for Intensive Care Unit (ICU) Clinical Pharmacy Service Characteristics: Non-bedside approaches

Constituents	Themes	Associated Codes
<i>Contributions</i>	<i>Medicine Reconciliation</i>	Medication history, communication between patient/relatives/primary and secondary care providers
	<i>Drug Administration Advice</i>	Fluid/drug concentration/volume checking, order set programming, responding to error reports, standardising infusion practices, dilution protocols
	<i>Medication Ordering & Supply</i>	Shortage procurement, dispensing/accuracy checking, ward stock replenishment, nurse led delivery of medications to ICU, sterile/non-sterile compounding, order verification, expediting antimicrobials within 1-hour, out-of-hours (OOH) supply, advising pharmacy technicians, advising relatives on procuring antibiotics
	<i>Shock Management</i>	Fluid/vasopressor/inotrope support checking
	<i>Antimicrobial Stewardship (AMS) Activities</i>	
	Sub-themes	Associated Codes
	<i>Antimicrobial Dosing</i>	Organ function, minimum inhibitory concentration (MIC), antimicrobial sensitivities
	<i>Antimicrobial Choice</i>	Allergy alternatives, site of infection, organ function, previous/encountered resistance, microbiology results, local resistance patterns, national guidance, shortages, restriction, spectrum of activity, cost, indication
	<i>Therapeutic Drug Monitoring (TDM)</i>	Initiation, serum concentration timings, serum concentration monitoring, dose adjustment, protocol compliance, serum concentration interpretation, governance, Bayesian dosing software
	<i>Clinical Monitoring</i>	Laboratory markers, nutrition, antibiotic duration alerts, clinical response, high risk patient identification
	<i>Reporting</i>	Adverse drug reactions, antimicrobial consumption (defined daily doses (DDD)), local resistance, quality markers, research/clinical outcome metrics, financial, antimicrobial resistance (AMR), service performance metrics (discharge flow/allergy status/sepsis performance metrics/administration times), pharmacovigilance, prescribing analytics, drug errors, carbapenem consumption, antimicrobial delays, restricted antimicrobial prescribing, medication errors, electronic prescribing and medicines administration (ePMA) drug reports, antibiotic indications, length of antimicrobials, dispensary alerts for >7 day antimicrobial duration, drug reimbursement
	<i>Guideline & Policy Generation</i>	Antibiotic policy, AMS policy, antimicrobial prescribing choices based on local resistance patterns, embedding national guidance in empirical therapies, antimicrobial administration, intravenous (IV) to oral stepdown options, TDM, administration compatibilities, ePMA integrated clinical support tools, ePMA integrated medication order sets, surgical prophylaxis, international guidance

		implementation (Centers for Disease Control and Prevention (CDC)/Sepsis-6 Campaign/Surviving Sepsis Campaign), risk stratification of patients with infection prevention control (IPC), devising antibiotics categories for AMR profile, sepsis identification, standardised antimicrobial dosing
	<i>Research & Development</i>	ePMA clinical alerts, principal investigator, ePMA pre-programmed doses tailored to patient characteristics, drug dosing based on pharmacokinetic/pharmacodynamic (PK/PD) characteristics, programming sepsis medications into ePMA packages, state-wide drug directory, software development, Bayesian software prior data, systems-based solution based on audit, quality improvement, TDM personalisation, expanded scope of antimicrobial TDM, genomics, metagenomics, dosing improvements, improved clinical/microbiological outcomes, tools to capture real-time clinical pharmacy interventions, optimisation of initial and continuous antimicrobial exposure, complex/extracorporeal circuit patients, clinical trials, consultancy, outcomes of pharmacist interventions
Constituents	Themes	Associated Codes
<i>Delivery</i>	<i>Service Delivery</i>	Multidisciplinary team (MDT) communication, electronic entries, co-ordination between pharmacy specialities, directorate work, specialised roles (AMS/medication safety/formulary/education/research/quality improvement/sepsis rapid response champions), advising relatives, remotely advising smaller hospitals, standardised practice roll out, national advocacy, staff management, central pharmacy vs unit leadership
	<i>Committees</i>	Formulary, care groups, ICU, pharmacy, medicines safety, adverse drug reactions, AMS
	<i>Education & Training</i>	Junior doctors and pharmacists