

Policies and Procedures for Sound-alike and Look-alike Medications

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ABSTRACT

The sound-alike and look-alike (SALA) drug is one of the most common causes of medication error and is of fear globally. Thus, the probability for error due to confusing drug names is very high. The SALA drug names have become a significant challenge to pharmacists, nurses, patients, and doctors. With thousands of drugs currently on the market, the probability for error is significant. The purpose of this article is to formulate a policy that would help in minimizing medication errors arising with the use of SALA medications.

Keywords: Medication errors, Medication management, Patient safety, SALA medications

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INTRODUCTION

Sound-alike and Look-alike Medications

Medication names that sound similar are identified as sound-alike medications and medication names in which packaging is visually similar to another product or medication are identified as look-alike medications.¹ Sound-alike medications are those for which generic or trade names of the product or medication sound similar in the spoken or written words. Thus, they have a high potential for medication error.

Human factor concepts that are relevant to the medication use process are simplicity, standardization, differentiation, lack of duplication, and unambiguous communication.²

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NEED OF THE POLICY

The SALA medications create serious problems in health care, leading to 29% of medication dispensing errors. Approximately 25% of errors reported to national medication error reporting programs is the aftermath of confusion with drug names that sound alike and look alike.^{3,4}

MATERIALS AND METHODS

This was a descriptive cross-sectional study carried between March 2016 and March 2017. The study population included doctors, nursing personnel, pharmacists, and quality managers from tertiary care hospitals of both public and private hospitals of India. Checklist was made after an exhaustive review of literature, which was then improvised. Validation of the checklist was done by experts in quality assurance from the National Accreditation Board for Hospitals and Health care Providers-accredited private hospitals. Subsequently, interaction was done with study population against the backdrop of the checklist and policy was formulated.

ANALYSIS AND RESULTS

Two hundred people which included doctors, nurses, pharmacists, and quality managers of tertiary care public and private hospitals were approached for interaction against the backdrop of the check list. Total response rate was 60%. A total of 25 responded out of 50 doctors approached, 35 nurses responded out of 50, 24 quality managers interacted out of 50, and 36 pharmacists responded out of 50 approached. Policy was framed after incorporating inputs from responses received against the backdrop of the checklist.

AIM

The aim of the policy is to augment awareness among health care providers with regard to potential for medication errors due to SALA drugs, hence minimizing medication error.

OBJECTIVES

- To identify SALA medications, i.e., the drugs which have higher potential of medication error due to similarities in their nomenclature (generic/brand name) or their looks (in packaging).

- To increase awareness among health care providers regarding SALA medications.
- To minimize medication errors arising with the use of SALA medications.
- To ensure ordering, storing, handling, and administration of SALA medications in a standardized manner.

SCOPE

- All areas of the health care facility where pharmacy is stored.
- All patient care areas of the hospital.

RESPONSIBILITIES

Pharmacist
Nursing staff
Clinicians

POLICY

Strategies to Monitor SALA Drugs^{3,5-8}

- List of SALA medications to be prepared by the pharmacy of the health care facility. The list needs to be updated every 6 months.
- The list is to be prepared in two sets (Set 1 and Set 2) and drugs are stored in two separate racks/containers accordingly intended to avoid medication error due to close proximity of two SALA medications.
- To evade medication error, while dealing with SALA drugs, tall-man lettering should be practiced. In tall-man lettering, part of a drug's name should be in upper case letters to distinguish SALA drugs from one another in order to avoid medication errors (e.g., predniSONE/predniSOLONE).⁹
- Generic names should also be included in the list of SALA drugs for reconfirming the selection of right medication.
- All nursing stations, treatment rooms, and other patient care area should have the list of SALA medications.
- Any query regarding SALA drugs should be answered by the pharmacy/clinicians at the earliest with correct information.

How to Store SALA Drugs^{3,5-8}

- The SALA medications should not be stocked up along with other medications, anywhere in the hospital.
- The SALA medications should be stored separately in two racks in the pharmacy store, Group I medications in one rack and group II medications in the other rack to avoid medication error.
- In the wards, emergency, and operation theater, the SALA drugs should be stored in separate drug bins or plastic boxes.

- In the pharmacy stores, the list of SALA medications should be hanging from both racks.
- In the ward/unit, the list should be pasted inside medication room, if required, on nursing station.

Standardizing Warning Signage¹⁰

Warning stickers pink in color and stating *Sound-alike or Look-alike Medications* need to be pasted on the storage racks in pharmacy.

In the ward/unit, emergency, or operation theater, cupboards storing the SALA drugs should have the *pink colored* SALA medication warning label/sticker outside the cupboard.

Inside the cupboard storing SALA drugs, the containers storing groups I and II SALA medications should have *pink colored* SALA warning sticker.

How to Standardize Ordering/Prescription of SALA Drugs

- While prescribing SALA medications, CAPITAL LETTERS should always be used and handwriting should be clear and legible.
- While ordering or prescribing SALA medications manually, both the brand and the generic name should be documented in the medication chart.¹⁰
- Formulary should be accessible to clinicians and staff nurses and facility should be provided for confirming
 - Generic name from a brand name or
 - Available brand names from a generic name
- Before documenting the prescription
 - There should be readback confirmation of the drug name
 - The generic composition of the name should be noted

How to Dispense SALA Drugs

Medication incidents linked to SALA drug names can pose serious harm to the patients. It is often difficult to detect the medication errors related to SALA drugs as the dispensed medication is presumed to have been the one that is prescribed for the patient.¹¹

- At pharmacy or store while dispensing SALA medications, it should be doubly checked by another pharmacist.
- In wards, nursing staff should doubly check SALA medication before dispensing.
- In case of any doubt, it is mandatory that before dispensing SALA medications, the generic name of the drug to be dispensed should be confirmed from the doctors.
- The list of SALA medications should be made available in all the area from where drugs are being dispensed.

How to Administer SALA Drugs

List of SALA medications should be available (pasted) in all medication rooms for cross reference.

Sound-alike and Look-alike drugs being high-risk medication, the patient should be monitored periodically,

after administration of the drug, as this group of medications has high potential for medication error.¹²

List of look-alike medications is provided in Annexure 1.⁹

List of sound-alike medications is provided in Annexure 2.¹³

Annexure 1

<i>Look-alike drugs</i>			
<i>Group 1</i>		<i>Group 2</i>	
<i>Brand name</i>	<i>Generic</i>	<i>Brand name</i>	<i>Generic</i>
Acivir 5 gm Cream	Acyclovir	Acivir Eye Ointment 5 gm Tube	Acyclovir
Adaferin	Adapalene	Clindac A	Clindamycin
Alex syrup	Chlorpheniramine maleate+Dextromethorphan	Alex (Sugar Free)	Chlorpheniramine maleate+Dextromethorphan
Alphagan P Eye Drops	Brimonidine+purine derivatives	Alphagan Eye Drops	Brimonidine
Amantral 100 mg cap	Amantadine	Redotil cap	Racecadrotil
Ambrodil Syrup	Ambroxol Hydrochloride	Ambrodil Plus Syrup	Ambroxol Hydrochloride+Chlorpheniramine maleate
Ambrolite S Syrup	Ambroxol Hydrochloride + Salbutamol+Guaifenesin	Ambrolite D Syrup	Cetirizine+Dextromethorphan+Pseudoephedrine HCl
Adriamycin INJ	Doxorubicin	Farmorubicin INJ	Farmorubicin
Amclox	Ampicillin+Cloxacillin	Ceff 500	Cephalexin
Benzac AC	Benzoylperoxide	Premethrin	Premethrin
Betadine Gargles	Povidine Iodine	Betadine Solution	Povidine Iodine
Betnovate Cream	Betamethasone valerate	Betnovate N Cream	Betamethasone valerate+Neomycin
Bioclox Inj. 500 mg	Cloxacillin	Biocillin Inj. 500 mg	Ampicillin
Bricarex A Syrup	Ambroxol Hydrochloride + Terbutaline+Guaifenesin	Bricarex Syrup	Terbutaline
Buscopan Tab	Hyoscine-N-butylbromide	Dulcolax Tab	Bisacodyl
Candid Mouthpaint	Clotrimazole	Candid Topical Solution	Clotrimazole
Cefmate 1 gm	Cefoperazone+Sulbactam	Piptamate 4.5 gm	Piperacillin+Tazobactam
Ciplox Cream	Ciprofloxacin	Ciplox D Cream	Ciprofloxacin+Dexamethasone
Clearz	Kozic Acid	Clearz Plus	Kozic Acid+ Vitamin C
Clindac A	Clindamycin	Desowen	Desonide
Corex 100 mL Syrup	Codeine phosphate + Chlorpheniramine maleate+Alcohol	Bron Corex 100 mL Syrup	Bromhexine+Terbutaline+Guaiphenesin
Coscopin	Noscapine	Coscopin Plus	Noscapine+Sodium Citrate+Ammonium Chloride+Chlorpheniramine Maleate
Crocin	Paracetamol	Crocin DS	Paracetamol suspension
Cutizone T cream	Mopmetasone Furoate+Terbinafine	Cutizone ointment	Mopmetasone Furoate
Digene Tablets	Dried aluminum Hydroxide+Mg Al Silicate+Mg(OH) ₂	Gelusil Tablets	Aluminium hydroxide+magnesium trisilicate+methyl polysiloxane
Dipeptiven 50 mL	L-Alanine+L-Glutamine	Omegaven 10% 50 mL	EPA+DHA+Palmitic acid+Myristic acid
Duoline	Salbutamol+Ipratropium Bromide	Seroflo 500 rotacaps	Fluticasone
Dutas 0.5 mg	Dutasteride	Eldervit ZC	Vitamin B Complex
Emoderm	White Soft Paraffin Emollient cream with Benzoic Acid	Emolene	Propylene glycol and Diazolidinyl Urea
Emusone Cream	Clobetasone Propionate	Emusone M Cream	Clobetasone butyrate + Miconazole nitrate
Facelin Gel	Clindamycin Phosphate	Facelin A Gel	Clindamycin+Adapalene

(Cont'd...)

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Group 1		Group 2	
Brand name	Generic	Brand name	Generic
Foracort Inhaler	Formoterol	Budecort inhaler	Budesonide
Fucidine cream	Fusidic acid	Fucidine Ointment	Fusidic acid
Fuucibet cream	Fusidic acid + betamethasone	Fucidin Cream	Fusidic acid
Genteal Gel	Hydroxypropyl Methylcellulose	Genteal Eye Drops	Hydroxypropyl Methylcellulose+boric acid + KCl + NaCl
Grillinctus Syrup	Dextromethorphan + guiphenesin + ammonium chloride + chlorpheniramine maleate	Grillinctus BM Syrup	Terbutaline+Bromhexine
Halobet Cream	Halobetasol	Halobet S Cream	Halobetasol+Salicylic acid
Ibugesic Syrup	Ibuprofen	Ibugesic Plus Syrup	Ibuprofen+Paracetamol
Inj Magnex	Cefoperazone+Sulbactam	Inj Magnamycin	Cefoperazone sodium
Inj Solu Medrol 40 mg	Methyl Prednisolone succinate	Inj Depo-Medrol 40 mg	Methyl Prednisolone acetate
Inj Stancef 500 mg	Cefazolin Sodium	Inj Spectracef 500 mg	Cefditoren Pivoxil
Inj Supacef 250 mg	Cefuroxime	Inj Fortum 250 mg	Ceftazidime
Inj Taxim 500	Cefotaxim	Inj Taximax 1500	Cefotaxime Sodium +Sulbactam
Inj Xylocaine	Lidocaine Hydrochloride	Inj Xylocard	Lidocaine Hydrochloride
Intralipid 10%	Fat emulsion	Aminofen Infant 10%	Acetaminofen
Liv 52 Syrup	Herbal Preparation (For appetite)	Mentat Syrup	Herbal Preparation (Antiparkinsonism)
Meftal P	Mefenemic acid	Meftal Spas	Dicyclomine
Nadoxin C Cream	Clobetasol propionate + Nadifloxacin	Nadoxin Cream	Nadofloxacin
Nucoxia -p Tablets	Etoricoxib + Paracetamol	Nucoxia Tablets	Etoricoxib
Nizral	Ketoconazole	Surfaz SN	Clotrimazole+ Batamethasone+Neomycin
Polybion Syrup	Nicotinamide+pantothenyl alcohol + vitamin B + vitamin B12 + vitamin B2 + vitamin B6	Polybion SF Syrup	Vitamin b Complex
Riflux Forte	Alginic acid + Dried aluminium hydroxide + magnesium hydroxide + sodium bicarbonate	Riflux	Alginic acid+Dried aluminium hydroxide+magnesium trisilicate + sodium bicarbonate
Rumalaya cream	Herbal preparation for pain	Pilex Ointment	Herbal preparation for pain (anti-hemorrhoid)
Septillin Capsules	Herbal immunostimulant	Liv 52 Capsules	Herbal Preparation (For appetite)
Septillin Syrup	Herbal immunostimulant	Koflet Syrup	Herbal preparation for cough
Shelcal OS	Alphacalcidol	Shelcal 500 mg	Calcium
Syp Bacigyl	Norfloxacin	Syp Bacigyl - N	Metronidazole+norfloxacin
Syp Dilosyn	Methdilazine	Exp Dilosyn	Methdiazine hydrochloride+ Ammonium Chloride +Sodium Citrate
Syp Shelcal	Calcium+Vitamin d3	Syp Shelcal M	Boron+calcium carbonate+copper + magnesium oxide + manganese + vitamin D3 + zinc
Taxim O 200 Tablets	Cefixime	Taxim - O DT 50	Cefixime Dispersible tablet
T-Bact Ointment	Mupirocin	T - Bact cream	Mupirocin
Telma H Tablets	Telmisartan + hydrochlorthiazide	Telma AM	Telmisartan + amlodipine besylate
Tenovate Cream	Clobetasone Propionate	Tenovate G	Clobetasone butyrate + Gentamycin
Tropacyl Plus	Tropicamide + Phenylephrine hydrochloride + Chlorbutol	Tears Plus	Ocular lubricant
Venla XR Tablets	Venlafaxine XR	Roliten OD 2 mg Tablets	Tolterodine l-tartrate
Visyneral Drops	Nutritional supplement	Visyneral Zn Drops	Nutritional supplement+zinc
Zole ointment	Miconazole	Zole F Ointment	Miconazole+Flucinolone acetoneide
Zytee	Choline salicylate + Benzalkonium chloride EPA – Eicosapentaenoic acid DHA – Docosahexaenoic acid	Surfaz SN	Clotrimazole + betamethasone dipropionate + neomycin sulphate + tolnafatate

Annexure 2

<i>Sound-alike drugs</i>			
<i>Group 1</i>		<i>Group 2</i>	
<i>Brand name</i>	<i>Generic</i>	<i>Brand name</i>	<i>Generic</i>
aceRET 25 mg Cap	Acitretin	aceTEN 25 mg Tab	Captopril
aceteC 25 mg Cap	Acitretin	aceteN 25 mg Tab	Captopril
Acivir 200 mg DT Tab	Acyclovir	VALcivir 500 mg Tab	Valacyclovir
adENOCOR 2 mL Inj.	Adenosine	adRENOR 2 mL Inj.	Noradrenaline
ALLegra 120 mg	Fexofenadine	EDegra 50 mg	Viagra
AMtas 10 mg Tablets	Amlodipine	DUtas 0.5 mg Cap	Dutasteride
angiZEM 60 mg Tablets	Diltiazem	angiSPAN 2.5 mg Tab	Glyceryl trinitrate
ATArax 10 mg Tab	Hydroxyzine	ALPrax 0.5 mg Tablets	Alprazolam
ATORva 20 mg Tab	Atorvastatin	ARAvA 20 mg Tab	Leflunomide
betaLOC 50 mg Tab	Metoprolol	betaTROP 50 mg Tab	Atenolol+nifedepin
busCOPAN 10 mg Tab	Hyoscine-N-butylbromide	busPIN 5 mg Tablets	Buspirone
CellIN 500 mg Tablets	Ascorbic acid	CeEMIN 500 mL IV	Amino acids
celemiN 500 IV	Parenteral nutritional supplement	celemiX 500 IV	Amino acid+fat+sorbitol
ciFRAN 500 mg Tablets	Ciprofloxacin	CiPLAR 10 mg Tablets	Propranolol
ciFRAN 500 mg Tablets	Ciprofloxacin	septRAN	Sulphamethoxazole + Trimethoprim
CIPLACtin Tablets	Cyproheptadine	CALAPtin 40 mg Tablets	Verapamil
clonIL 10 mg Tablets	Clomipramine	clonOTRIL 0.5 mg Tablets	Clonazepam
COLsprin CV 100 mg Tablets	Aspirin low dose	ECOsprin AV 150 mg Cap	Aspirin+atorvastatin
DEPSonil Tab	Imipramine	DAonil 5 mg Tab	Glibenclamide
diCONTIN XL 100 mg Tab	Diltiazem	diANTIN 25 mg Tab	Phenytoin
diLIGAN Tab	Meclizine	diZEM 30 mg tab	Diltiazem
domTAC Tablets	Pantoprazole	domCET Tablets	Domperidone
duOLIN Inhaler	Salbutamol+Ipratropium Bromide	duLANE 30 mg Cap	Duloxetine
ELOCon 5 mL Lotion	Mometasone furoate	EVALon cream 15 gm Tube	Estriol
EMESet 8 mg Tablets	Ondansetron	DOMCet Tablets	Domperidone
ENCorate	Sodium valproate	DICorate	Divalperox sodium
ENzar Forte Tablets	Amylase	VALZaar 40 mg Tab	Valsartan
EPidosin INJ	Valethamate	EPSolin INJ	Phenytoin
FAMOCid 20 mg Tablets	Famotidine	FERTOMid 25 mg Tab	Clomiphene
FESal N Tablets	Pancreatin + bile constituents + hemicellulase	MEFtal Forte Tablets	Mefenemic acid
fungiZONE INJ	Amphotericin B (conventional)	fungiSOME INJ	Amphotericin B (Liposomal)
Genteal 10 gm Gel	Hydroxypropyl methyl cellulose	Zentel 10 mL Syb Bottle	Albendazole
GLImer 1 tab	Glimipride	GALAmer 4 mg Tab	Galantamine
GLYnase 5 mg Tab	Glipizide	ZInase DP Tab	Diclofenac potassium + paracetamol + serratiopeptidase
I kul 10 mL eye drop	Phenyl epherine	I gol 100 gm powder	Isabgol powder
LIBrax 10 mg Tablets	Chlordiazepoxide + Clidinium bromide	LUBrex 10 mL eye drop	Sodium carboxyl methyl cellulose
LARpose 2 mg Tablets	Lorazepam	CALMpose 5 mg Tablets	Diazepam
LOpez	Lorazepam	Topaz	Topiramate
lorFAST 10 mg Tablets	Loratadine	lorVAS 2.5 mg Tab	Indapamide
Malirid 7.50 mg Tablets	Primaquine	alreid Tablets	Cetirizine
meftal FORTE Tablets	Mefenemic caid	meftal SPAS Tab	Dicyclomine
metADAC 25 mg Inj.	Nandrolene decanoate	metOLAR 25 mg Tab	Metoprolol
MICROGest 100 mg capsule	Progesterones + progestogens	MISOPRost 100 mg Tab	Misoprostol
nephroCAP Cap	Vitamin B	nephroSAVE Cap	N-acetylcysteine +taurine
NIMEgesic – OD Tablets	Nimesulide	IBUgesic 60 mL Syb Bottle	Ibuprofen
novaCLOX 500 mg Capsules	Amoxycillin+Cloxacillin	novaMOX Tab	Amoxicillin
NOVELOn Tablets	Progestogen+Estrogen	VOVERAn 50 mg Tablets	Diclofenac Sodium
novOLET MIXTARD 30HM	Human premixed insulin (30% soluble insulin+70% isophane (NPH)	novELON Tablets	Progestogen+Estrogen

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Group 1		Group 2	
Brand name	Generic	Brand name	Generic
numLO Tab	Amlodipine	numOL Tab	Diclofenac+Pracetamol
OCid 10 mg Capsules	Omeprazole	ROXid 300 mg Tab	Roxithromycin
Oflox 200 mg Tablets	Ofloxacin	NORflox 400 mg Tablets	Norfloxacin
PACIMOI 650 mg Tablets	Paracetamol	PRIMACAI Tab	Multivitamin+mineral
POTrate 200 mL Syrup	Potassium Citrate	POTklor 200 mL Syp	Potassium Chloride
PElox 400 mg Tablets	Pefloxacin	CIPlax 500 mg Tablets	Ciprofloxacin
R CIFAx 200 mg Tablets	Rifaximin	R-CINEx 450 mg Tablets	Rifampicin + Isoniazid
REXpar 200 mg Tablets	Sparfloxacin	RAClper 40 mg Tablets	Esomeprazole
SAtrogyI 300 mg Tablets	Satranidazole	CYCLogyI 5 mL Eye drop	Cyclopentolate
SAtrogyI 300 mg Tablets	Satranidazole	MEtrogyI 400 mg Tablets	Metronidazole
seFDIN 300 mg Capsules	Cefdinir	seBIFIN 250 mg Tablets	Terbinafine
SELOMax 50 mg Tab	Amlodipine+metoprolol	SOLIWax 10 mL Ear Drop	Sodium 1,4-bis(2-ethylhexoxy)-1,4-dioxobutane-2-sulfonate
solET Tab	Sotalol	solITEN 5 mg Tab	Solifenacin succinate
SOLIWax 10 mL Ear Drop	Sodium 1,4-bis(2-ethylhexoxy)-1,4-dioxobutane-2-sulfonate	COLIMEx 10 mL Drop	Dicyclomine
solONEX 300 mg Tab	Isoniazid	solIWAX 10 mL Ear Drop	Sodium 1,4-bis(2-ethylhexoxy)-1,4-dioxobutane-2-sulfonate
sporANOX 100 mg Capsules	Itraconazole	sporIDEX AF 750 mg Tab	Cephalexin
SYSCAn 150 mg Capsules	Fluconazole	SUSTEn 100 mg Cap	Progesterones+progestogens
TOPCid 20 mg Tablets	Famotidine	ROXid 150 mg Tablets	Roxithromycin
TORLactone – 10 Tablets	Torseamide+Spironolactone	ALDactone 100 mg Tablets	Spirinolactone
TREntal 400 mg Tablets	Pentoxifylline	TEGRItal 400 mg Tablets	Carbamazepine
UROtone 25 mg Tab	Bethanechol Chloride	UTERone 100 mg Cap	Progesterones+progestogens
valANCE 500 mg Tab	Divalproex	valENT 40 mg Cap	Valsartan
xylocARD Inj 50 mL Vial	Lidocaine Hydrochloride	xylocAINE 2% 30 mL Inj.	Lidocaine Hydrochloride
ZEMpred 8 mg Tab	Methylprednisolone	ACTOpred 500 mg Inj	Methylprednisolone Sodium Succinate
ZINconia SYP	Zinc	ZINcovit SYP	Zinc +Multivitamins
zeNTEL 400 mg Tab	Albendazole	zePTOL 100 mg Tab	Carbamazepine
zinCOLAK Capsules	Zinc Sulfate Monohydrate	zinETAC 150 mg Tab	Ranitidine
Zocef 250 mg Tablets	Cefuroxime	MONocef 250 mg Inj	Ceftriaxone
zoCON 150 mg Tablets	Fluconazole	zoBONE Inj	Zoledronic acid
zyrcoF Syrup	Cefadroxil + Ambroxal	zyrcoLD Tab	Cetirizine + Ambroxal
ZYRop 2000 IU Inj	Erythropoietin	ZYRcof syrup	Cefadroxil + Ambroxal

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