

FDA and ISMP Lists of Look-Alike Drug Names with Recommended Tall Man Letters

The look-alike drug names in the Tables that follow have been modified using tall man (mixed case) letters to help draw attention to the dissimilarities in their names. Several studies have shown that highlighting sections of drug names using tall man letters can help distinguish similar drug names,¹ making them less prone to mix-ups.²⁻³ ISMP, FDA, The Joint Commission, and other safety-conscious organizations have promoted the use of tall man letters as one means of reducing confusion between similar drug names.

Table 1 provides an alphabetized list of FDA-approved established drug names with recommended tall man letters, which were first identified during the FDA Name Differentiation Project (www.fda.gov/Drugs/DrugSafety/MedicationErrors/ucm164587.htm).

Table 2 provides an alphabetized list of additional drug names with recommendations from ISMP regarding the use and placement of tall man letters. This is not an official list approved by FDA. It is intended for voluntary use by healthcare practitioners and drug information vendors. Any product label changes by manufacturers require FDA approval.

One of the difficulties with the use of tall man letters includes inconsistent application in health settings and lack of standardization regarding which letters to present in uppercase. A new study by Gerrett⁴ describes several ways to determine which of the dissimilar letters in each drug name should be highlighted. To promote standardi-

zation, ISMP followed one of these tested methodologies whenever possible. Called the CD3 rule, the methodology suggests working from the left of the word first by capitalizing all the characters to the right once two or more dissimilar letters are encountered, and then, working from the right of the word back, returning two or more letters common to both words to lowercase letters. When the rule cannot be applied because there are no common letters on the right side of the word, the methodology suggests capitalizing the central part of the word only. ISMP suggests that the tall man lettering scheme provided in Tables 1 and 2 be followed when presenting these drug names to healthcare providers to promote consistency. At this time, scientific studies do not support the use of tall man letters when presenting drug names to patients.

References: 1) Filik R, Purdy K, Gale A, Gerrett D. Drug name confusion: evaluating the effectiveness of capital ("Tall Man") letters using eye movement data. *Social Science & Medicine* 2004;59(12):2597-2601. 2) Filik R, Purdy K, Gale A, Gerrett D. Labeling of medicines and patient safety: evaluating methods of reducing drug name confusion. *Human Factors* 2006;48(1):39-47. 3) Grasha A. Cognitive systems perspective on human performance in the pharmacy: implications for accuracy, effectiveness, and job satisfaction. Alexandria (VA): NACDS; 2000 Report No. 062100. 4) Gerrett D, Gale AG, Darker IT, Filik R, Purdy KJ. Tall man lettering. Final report of the use of tall man lettering to minimize selection errors of medicine names in computer prescribing and dispensing systems. Loughborough University Enterprises Ltd.; 2009 (www.connectingforhealth.nhs.uk/systemsandservices/eprescribing/refdocs/tallman.pdf).

Drug Name with Tall Man Letters	Confused with
aceta Z OLAMIDE	aceto H EXAMIDE
aceto H EXAMIDE	aceta Z OLAMIDE
bu P ROPion	bus P IRone
bus P IRone	bu P ROPion
chlorpro M AZINE	chlorpro P AMIDE
chlorpro P AMIDE	chlorpro M AZINE
clomi P HENE	clomi P RAMINE
clomi P RAMINE	clomi P HENE
cyclo S ERINE	cyclo S PORINE
cyclo S PORINE	cyclo S ERINE
D AUNObicin	D OXObicin
dimenhy D RINATE	diphenhy D RAMINE
diphenhy D RAMINE	dimenhy D RINATE
D OBUTamine	D OPamine
D OPamine	D OBUTamine

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**FDA and ISMP Lists of
Look-Alike Drug Names with Recommended Tall Man Letters (continued)**

Table 1. FDA-Approved List of Generic Drug Names with Tall Man Letters (continued)

Drug Name with Tall Man Letters	Confused with
DOXO ubicin	DAUNO ubicin
gli piZ IDE	gly BUR IDE
gly BUR IDE	gli piZ IDE
hydr ALAZ INE	hydr OXY zine
hydr OXY zine	hydr ALAZ INE
medroxy PROGESTER one	methyl PREDNIS olone - methyl TESTOSTER one
methyl PREDNIS olone	medroxy PROGESTER one - methyl TESTOSTER one
methyl TESTOSTER one	medroxy PROGESTER one - methyl PREDNIS olone
ni CARD ipine	NIF Edipine
NIF Edipine	ni CARD ipine
predniso LONE	predni SONE
predni SONE	predniso LONE
sulf ADIAZ INE	sulf ISOXAZ OLE
sulf ISOXAZ OLE	sulf ADIAZ INE
TOLAZ amide	TOLBUT amide
TOLBUT amide	TOLAZ amide
vin BLAS tine	vin CRIS tine
vin CRIS tine	vin BLAS tine

Table 2. ISMP List of Additional Drug Names with Tall Man Letters

Drug Name with Tall Man Letters	Confused with
ALPRAZ olam	LOR azepam
a MIL oride	am LODIP ine
am LODIP ine	a MIL oride
ARIP iprazole	RABE prazole
AVIN za*	INV anz*
aza CITID ine	aza THIO prine
aza THIO prine	aza CITID ine
carb AM azepine	OX carbazepine
CARBO platin	CIS platin
ce FAZ olin	cefo TE tan - cef OX itin - cef TAZ idime - cef TRIA Xone
cefo TE tan	ce FAZ olin - cef OX itin - cef TAZ idime - cef TRIA Xone
cef OX itin	cefo TE tan - cef OX itin - cef TAZ idime - cef TRIA Xone
cef TAZ idime	cefo TE tan - cef OX itin - cef TRIA Xone
cef TRIA Xone	cefo TE tan - cef OX itin - cef TAZ idime
Cele BREX *	Cele XA *
Cele XA *	Cele BREX *
chlordiaze POXIDE	chlorpro MAZINE
chlorpro MAZINE	chlordiaze POXIDE
CIS platin	CARBO platin
clonaze PAM	clo NID ine - clo ZAP ine - LOR azepam

* Brand names always start with an uppercase letter. Some brand names incorporate tall man letters in initial characters and may not be readily recognized as brand names. An asterisk follows all brand names in Table 2.

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**FDA and ISMP Lists of
Look-Alike Drug Names with Recommended Tall Man Letters (continued)**

Table 2. ISMP List of Additional Drug Names with Tall Man Letters (continued)	
Drug Name with Tall Man Letters	Confused with
cloNIDine	clonazePAM – cloZAPine – Klonopin*
cloZAPine	clonazePAM – cloNIDine
DACTINomycin	DAPTOmycin
DAPTOmycin	DACTINomycin
DOCEtaxel	PACLitaxel
DOXOrubicin	IDARubicin
DULoxetine	FLUoxetine – PARoxetine
ePHEDrine	EPINEPHrine
EPINEPHrine	ePHEDrine
fentaNYL	SUFentanil
flavoxATE	fluvoxamine
FLUoxetine	DULoxetine – PARoxetine
fluPHENAZine	fluvoxamine
fluvoxamine	fluPHENAZine – flavoxATE
guaifENesin	guanFACINE
guanFACINE	guaifENesin
HumaLOG*	HumuLIN*
HumuLIN*	HumaLOG*
HYDROcodone	oxyCODONE
HYDROmorphine	morphine
IDARubicin	DOXOrubicin
inFLIXimab	ritUXimab
INVanz*	AVINza*
ISOTretinoin	tretinoin
Klonopin*	cloNIDine
LaMICTal*	LamISIL*
LamISIL*	LaMICTal*
lamiVUDine	lamoTRIGine
lamoTRIGine	lamiVUDine
levETIRAcetam	levOCARNitine
levOCARNitine	levETIRAcetam
LORazepam	ALPRAZolam – clonazePAM
metFORMIN	metroNIDAZOLE
metroNIDAZOLE	metFORMIN
mitoMYcin	mitoXANtrone
mitoXANtrone	mitoMYcin
NexAVAR*	NexIUM*
NexIUM*	NexAVAR*
niCARDipine	niMODipine – NIFEdipine
NIFEdipine	niMODipine – niCARDipine
niMODipine	NIFEdipine – niCARDipine
NovoLIN*	NovoLOG*

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**FDA and ISMP Lists of
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Table 2. ISMP List of Additional Drug Names with Tall Man Letters (continued)	
Drug Name with Tall Man Letters	Confused with
NovoLOG*	NovoLIN*
OLANzapine	QUETiapine
OXcarbazepine	carBAMazepine
oxyCODONE	HYDROcodone – OxyCONTIN*
OxyCONTIN*	oxyCODONE
PACLitaxel	DOCEtaxel
PARoxetine	FLUoxetine – DULOoxetine
PEMETrexed	PRALATrexate
PENTobarbital	PHENobarbital
PHENobarbital	PENTobarbital
PRALATrexate	PEMETrexed
PriLOSEC*	PROzac*
PROzac*	PriLOSEC*
QUETiapine	OLANzapine
quiNIDine	quiNINE
quiNINE	quiNIDine
RABEprazole	ARIPiprazole
RisperDAL*	rOPINIRole
risperiDONE	rOPINIRole
riTUXimab	inFLIXimab
romiDEPsin	romiPLOStim
romiPLOStim	romiDEPsin
rOPINIRole	RisperDAL* – risperiDONE
SandIMMUNE*	SandoSTATIN*
SandoSTATIN*	SandIMMUNE*
SEROquel*	SINEquan*
SINEquan*	SEROquel*
sitaGLIPTin	SUMAtriptan
Solu-CORTEF*	Solu-MEDROL*
Solu-MEDROL*	Solu-CORTEF*
SORafenib	SUNItinib
SUFentanil	fentaNYL
sulfADIAZINE	sulfaSALazine
sulfaSALazine	sulfADIAZINE
SUMAtriptan	sitaGLIPTin – ZOLMitriptan
SUNItinib	SORafenib
TEGretol*	TREntal*
tiaGABine	tiZANidine
tiZANidine	tiaGABine
traMADol	traZODone
traZODone	traMADol

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Table 2. ISMP List of Additional Drug Names with Tall Man Letters (continued)	
Drug Name with Tall Man Letters	Confused with
TREntal*	TEGretol*
valACVciclovir	valGANCiclovir
valGANCiclovir	valACVciclovir
ZOLMitriptan	SUMatriptan
ZyPREXA*	ZyrTEC*
ZyrTEC*	ZyPREXA*

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