

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

Since 2008, ISMP has maintained a list of drug name pairs and trios with recommended, **bolded** tall man (uppercase) letters to help draw attention to the dissimilarities in look-alike drug names. The list includes mostly generic-generic drug name pairs, although a few brand-brand or brand-generic name pairs are included. The US Food and Drug Administration (FDA) list of drug names with recommended tall man letters was initiated in 2001 with the agency's Name Differentiation Project ([www.ismp.org/sc?id=520](http://www.ismp.org/sc?id=520)).

While numerous studies between 2000 and 2016 have demonstrated the ability of tall man letters alone or in conjunction with other text enhancements to improve the accuracy of drug name perception and reduce errors due to drug name similarity,<sup>1-9</sup> some studies have suggested that the strategy is ineffective.<sup>10-12</sup> The evidence is mixed due in large part to methodological differences and significant study limitations. Nevertheless, while gaps still exist in our full understanding of the role of tall man lettering in the clinical setting, there is sufficient evidence to suggest that this simple and straightforward technique is worth implementing as one among numerous strategies to mitigate the risk of errors due to similar drug names. To await irrefutable, scientific proof of effectiveness minimizes and undervalues the study findings and anecdotal evidence available today<sup>13</sup> that support this important risk-reduction strategy. As such, the use of tall man letters has been endorsed by ISMP, The Joint Commission (recommended but not required), the US Food and Drug Administration (as part of its Name Differentiation Project), as well as other national and international organizations, including the World Health Organization and the International Medication Safety Network (IMSN).<sup>14</sup>

**Table 1** provides an alphabetized list of FDA-approved established drug names with recommended tall man letters.

**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, drug information vendors, and medication technology vendors. Any product label changes by manufacturers require FDA approval.

To promote standardization regarding which letters to present in uppercase, ISMP follows a tested methodology whenever possible called the CD3 rule.<sup>15</sup> The methodology suggests working from the left of the drug name first by capitalizing all the characters to the right once 2 or more dissimilar letters are encountered, and then, working from the right, returning 2 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 name, the methodology suggests capitalizing the central part of the word only. When application of this rule fails to lead to the best tall man lettering option (e.g., makes names appear too similar, makes names hard to read based on pronunciation), an alternative option is considered.

ISMP suggests that the **bolded**, tall man lettering scheme provided by FDA and ISMP for the drug name pairs listed in **Tables 1** and **2** be followed to promote consistency.

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**Table 1. FDA-Approved List of Generic Drug Names with Tall Man Letters**

Drug Name With Tall Man Letters	Confused With
aceta <b>ZOLAMIDE</b>	aceto <b>HEXAMIDE</b>
aceto <b>HEXAMIDE</b>	aceta <b>ZOLAMIDE</b>
bu <b>PROPion</b>	bus <b>PIRone</b>
bus <b>PIRone</b>	bu <b>PROPion</b>
chlorpro <b>MAZINE</b>	chlorpro <b>PAMIDE</b>
chlorpro <b>PAMIDE</b>	chlorpro <b>MAZINE</b>
clomi <b>PHENE</b>	clomi <b>PRAMINE</b>
clomi <b>PRAMINE</b>	clomi <b>PHENE</b>
cyclo <b>SERINE</b>	cyclo <b>SPORINE</b>
cyclo <b>SPORINE</b>	cyclo <b>SERINE</b>
<b>DAUNO</b> rubicin	<b>DOXO</b> rubicin
dimenhy <b>DRINATE</b>	diphenhydr <b>AMINE</b>
diphenhydr <b>AMINE</b>	dimenhy <b>DRINATE</b>
<b>DOBU</b> Tamine	<b>DOP</b> amine
<b>DOP</b> amine	<b>DOBU</b> Tamine
<b>DOXO</b> rubicin	<b>DAUNO</b> rubicin

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

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

Drug Name With Tall Man Letters	Confused With
gli <b>PI</b> ZIDE	gly <b>BUR</b> IDE
gly <b>BUR</b> IDE	gli <b>PI</b> ZIDE
hydr <b>AL</b> AZINE	hydr <b>OX</b> Yzine – <b>HYDR</b> omorphone
<b>HYDR</b> omorphone	hydr <b>OX</b> Yzine – hydr <b>AL</b> AZINE
hydr <b>OX</b> Yzine	hydr <b>AL</b> AZINE – <b>HYDR</b> omorphone
medroxy <b>PROG</b> ESTERone	methyl <b>PREDN</b> ISolone – methyl <b>TEST</b> OSTERone
methyl <b>PREDN</b> ISolone	medroxy <b>PROG</b> ESTERone – methyl <b>TEST</b> OSTERone
methyl <b>TEST</b> OSTERone	medroxy <b>PROG</b> ESTERone – methyl <b>PREDN</b> ISolone
mito <b>XAN</b> TRONE	Not specified
ni <b>CAR</b> dipine	<b>NIF</b> Edipine
<b>NIF</b> Edipine	ni <b>CAR</b> dipine
predni <b>SO</b> NE	predni <b>SON</b> E
predni <b>SON</b> E	predni <b>SO</b> NE
risperi <b>DO</b> NE	<b>RO</b> PI <b>NI</b> Role
<b>RO</b> PI <b>NI</b> Role	risperi <b>DO</b> NE
sulf <b>ADIA</b> AZINE	sulf <b>SOX</b> AZOLE
sulf <b>SOX</b> AZOLE	sulf <b>ADIA</b> AZINE
<b>TOL</b> AZamide	<b>TOL</b> BUTamide
<b>TOL</b> BUTamide	<b>TOL</b> AZamide
vin <b>BLAS</b> tine	vin <b>CRIS</b> tine
vin <b>CRIS</b> tine	vin <b>BLAS</b> tine

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

Drug Name With Tall Man Letters	Confused With
<b>ALPRA</b> Zolam	<b>LO</b> Razepam – clonaz <b>PAM</b>
a <b>MI</b> Loride	am <b>LODIP</b> ine
am <b>LODIP</b> ine	a <b>MI</b> Loride
<b>ARIP</b> iprazole	<b>RABE</b> prazole
<b>AVIN</b> za*	<b>INV</b> anz*
aza <b>CITID</b> ine	aza <b>THIO</b> prine
aza <b>THIO</b> prine	aza <b>CITID</b> ine
car <b>BAM</b> azepine	<b>OX</b> carbazepine
<b>CARBO</b> platin	<b>CIS</b> platin
ce <b>FAZ</b> olin	ce <b>FO</b> Etan – ce <b>OX</b> itin – ce <b>TAZ</b> idime – ce <b>TRIA</b> Xone
ce <b>FO</b> Etan	ce <b>FAZ</b> olin – ce <b>OX</b> itin – ce <b>TAZ</b> idime – ce <b>TRIA</b> Xone
ce <b>OX</b> itin	ce <b>FAZ</b> olin – ce <b>FO</b> Etan – ce <b>TAZ</b> idime – ce <b>TRIA</b> Xone
ce <b>TAZ</b> idime	ce <b>FAZ</b> olin – ce <b>FO</b> Etan – ce <b>OX</b> itin – ce <b>TRIA</b> Xone
ce <b>TRIA</b> Xone	ce <b>FAZ</b> olin – ce <b>FO</b> Etan – ce <b>OX</b> itin – ce <b>TAZ</b> idime
Cele <b>BREX</b> *	Cele <b>XA</b> *
Cele <b>XA</b> *	Cele <b>BREX</b> *
chlordi <b>az</b> e <b>POXID</b> E	chl <b>or</b> pr <b>o</b> <b>MAZINE</b> **

\* 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 on the ISMP list.

\*\* These drug names are also on the FDA list.

\*\*\* The ISMP list is not an official list approved by FDA. It is intended for voluntary use by healthcare practitioners and drug information and technology vendors. Any manufacturers' product label changes require FDA approval.

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

Table 2. ISMP List of Additional Drug Names with Tall Man Letters*** (continued)	
Drug Name With Tall Man Letters	Confused With
chlorpro <b>MAZINE</b> **	chlordiaze <b>POXIDE</b>
<b>CIS</b> platin	<b>CARBO</b> platin
clo <b>BAZ</b> am	clonaze <b>PAM</b>
clonaze <b>PAM</b>	clo <b>NID</b> ine – clo <b>ZAP</b> ine – clo <b>BAZ</b> am – <b>LOR</b> azepam
clo <b>NID</b> ine	clonaze <b>PAM</b> – clo <b>ZAP</b> ine – Klon <b>oPIN</b> *
clo <b>ZAP</b> ine	clonaze <b>PAM</b> – clo <b>NID</b> ine
<b>DACTIN</b> omycin	<b>DAPTO</b> mycin
<b>DAPTO</b> mycin	<b>DACTIN</b> omycin
<b>DEPO</b> -Medrol*	<b>SOLU</b> -Medrol*
diaze <b>PAM</b>	di <b>TI</b> AZem
di <b>TI</b> AZem	diaze <b>PAM</b>
<b>DOCE</b> taxel	<b>PACL</b> itaxel
<b>DOXO</b> rubicin**	<b>IDA</b> rubicin
<b>DU</b> Loxetine	<b>FLU</b> oxetine – <b>PAR</b> oxetine
e <b>PHE</b> drine	<b>EPINEPH</b> rine
<b>EPINEPH</b> rine	e <b>PHE</b> drine
epi <b>RUB</b> icin	eri <b>BUL</b> in
eri <b>BUL</b> in	epi <b>RUB</b> icin
fenta <b>NVL</b>	<b>SUF</b> entanil
flavo <b>ATE</b>	fluvoxa <b>MINE</b>
<b>FLU</b> oxetine	<b>DUL</b> oxetine – <b>PAR</b> oxetine
flu <b>PHENAZ</b> ine	fluvoxa <b>MINE</b>
fluvoxa <b>MINE</b>	flu <b>PHENAZ</b> ine – flavo <b>ATE</b>
guai <b>FEN</b> esin	guan <b>FAC</b> ine
guan <b>FAC</b> ine	guai <b>FEN</b> esin
Huma <b>LOG</b> *	Humu <b>LIN</b> *
Humu <b>LIN</b> *	Huma <b>LOG</b> *
hydr <b>ALAZINE</b> **	hydro <b>CHLORO</b> thiazide – hydro <b>OXYzine</b> **
hydro <b>CHLORO</b> thiazide	hydro <b>OXYzine</b> ** – hydr <b>ALAZINE</b> **
<b>HYDRO</b> codone	oxy <b>CODONE</b>
<b>HYDRO</b> morphine**	morphine – oxy <b>MOR</b> phone
<b>HYDROXY</b> progesterone	medroxy <b>PROGESTERone</b> **
hydr <b>OXYzine</b> **	hydr <b>ALAZINE</b> ** – hydro <b>CHLORO</b> thiazide
<b>IDA</b> rubicin	<b>DOXO</b> rubicin** – idaru <b>CIZU</b> mab
idaru <b>CIZU</b> mab	<b>IDA</b> rubicin
in <b>FLIX</b> imab	ri <b>TUX</b> imab
<b>INV</b> anz*	<b>AVIN</b> za*
<b>ISO</b> tretinoin	tretinoin
Klon <b>oPIN</b> *	clo <b>NID</b> ine
La <b>MIC</b> tal*	Lam <b>ISIL</b> *
Lam <b>ISIL</b> *	La <b>MIC</b> tal*

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**FDA and ISMP Lists of Look-Alike Drug Names with Recommended Tall Man Letters**
**Table 2. ISMP List of Additional Drug Names with Tall Man Letters\*\*\* (continued)**

<b>Drug Name With Tall Man Letters</b>	<b>Confused With</b>
lami <b>VU</b> Dine	lamo <b>TRI</b> gine
lamo <b>TRI</b> gine	lami <b>VU</b> Dine
lev <b>ETI</b> RAcetam	lev <b>OCAR</b> Nitine – levo <b>FLOX</b> acin
lev <b>OCAR</b> Nitine	lev <b>ETI</b> RAcetam
levo <b>FLOX</b> acin	lev <b>ETI</b> RAcetam
<b>LEVO</b> leucovorin	leucovorin
<b>LOR</b> azepam	<b>ALPRAZ</b> olam – clonaze <b>PAM</b>
medroxy <b>PROG</b> ESTERone**	<b>HYDROXY</b> progesterone
met <b>FOR</b> MIN	metro <b>NIDA</b> ZOLE
methazo <b>AM</b> IDE	meth <b>IMA</b> zole – met <b>OL</b> azone
meth <b>IMA</b> zole	met <b>OL</b> azone – methazo <b>AM</b> IDE
met <b>OL</b> azone	meth <b>IMA</b> zole – methazo <b>AM</b> IDE
metro <b>NIDA</b> ZOLE	met <b>FOR</b> MIN
metyra <b>PONE</b>	metyro <b>SINE</b>
metyro <b>SINE</b>	metyra <b>PONE</b>
mi <b>FEPRI</b> Stone	mi <b>SOPRO</b> Stol
mi <b>SOPRO</b> Stol	mi <b>FEPRI</b> Stone
mito <b>MY</b> cin	mito <b>XANTRONE</b> **
mito <b>XANTRONE</b> **	mito <b>MY</b> cin
Nex <b>AVAR</b> *	Nex <b>IUM</b> *
Nex <b>IUM</b> *	Nex <b>AVAR</b> *
ni <b>CARD</b> ipine**	ni <b>MOD</b> ipine – ni <b>FEDI</b> pine**
<b>NIFE</b> dipine**	ni <b>MOD</b> ipine – ni <b>CARD</b> ipine**
ni <b>MOD</b> ipine	<b>NIFE</b> dipine** – ni <b>CARD</b> ipine**
Novo <b>LIN</b> *	Novo <b>LOG</b> *
Novo <b>LOG</b> *	Novo <b>LIN</b> *
<b>OLANZ</b> apine	<b>QUETI</b> apine
<b>OX</b> carbapizine	car <b>BAM</b> azepine
oxy <b>CODONE</b>	<b>HYDRO</b> codone – Oxy <b>CONTIN</b> * – oxy <b>MOR</b> phine
Oxy <b>CONTIN</b> *	oxy <b>CODONE</b> – oxy <b>MOR</b> phine
oxy <b>MOR</b> phine	<b>HYDRO</b> morphine** – oxy <b>CODONE</b> – Oxy <b>CONTIN</b> *
<b>PACL</b> itaxel	<b>DOCET</b> axel
<b>PAR</b> oxetine	<b>FLU</b> oxetine – <b>DULO</b> xetine
<b>PAZO</b> panib	<b>PONAT</b> inib
<b>PEME</b> trexed	<b>PRALA</b> trexate
penicill <b>AMINE</b>	penicillin
<b>PENT</b> obarbital	<b>PHEN</b> obarbital
<b>PHEN</b> obarbital	<b>PENT</b> obarbital
<b>PONAT</b> inib	<b>PAZO</b> panib
<b>PRALA</b> trexate	<b>PEME</b> trexed
Pri <b>LOSEC</b> *	<b>PROZAC</b> *

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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
PROzac*	PriLOSEC*
QUetiapine	OLANZapine
quiNIDine	quiNINE
quiNINE	quiNIDine
RABEprazole	ARIPiprazole
raNITIdine	riMANTAdine
rifAMPin	rifAXIMin
rifAXIMin	rifAMPin
riMANTAdine	raNITIdine
RisperDAL*	rOPINIRole**
risperiDONE**	rOPINIRole**
riTUXimab	inFLIXimab
romiDEPsin	romiPLOSstim
romiPLOSstim	romiDEPsin
rOPINIRole**	RisperDAL*– risperiDONE**
SandIMMUNE*	SandoSTATIN*
SandoSTATIN*	SandIMMUNE*
sAXagliptin	SITagliptin
SEROquel*	SINEquan*
SINEquan*	SEROquel*
SITagliptin	sAXagliptin – SUMatriptan
Solu-CORTEF*	SOLU-Medrol*
SOLU-Medrol*	Solu-CORTEF* – DEPO-Medrol*
SORafenib	SUNItinib
SUFentanil	fentaNYL
sulfaADIAZINE**	sulfaSALAzine
sulfaSALAzine	sulfaADIAZINE**
SUMatriptan	SITagliptin – ZOLMitriptan
SUNItinib	SORafenib
TEGretol*	TREntal*
tiaGABine	tiZANidine
tiZANidine	tiaGABine
traMADol	traZODone
traZODone	traMADol
TREntal*	TEGretol*
valACYclovir	valGANciclovir
valGANciclovir	valACYclovir
ZOLMitriptan	SUMatriptan
ZyPREXA*	ZyrTEC*
ZyrTEC*	ZyPREXA*

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