

PATIENT INFORMATION

 NAME:
 JILLIAN DOE

 ACC #:
 1607190464

 DOB:
 1/1/1753

 SEX:
 Female

SPECIMEN DETAILS

REPORT DATE:

COLLECTION DATE: 7/19/2016 RECEIVED DATE: 7/19/2016

8/11/2016

DOCTOR JONES

ORDERED BY

1^ABC CLINICAL LAB

Psychiatry PGX Profile

Potentially Impacted Medications

CATEGORY	DRUG CLASS	STANDARD PRECAUTIONS	USE WITH CAUTION	CONSIDER ALTERNATIVES
	Antiaddictives		Bupropion (Wellbutrin, Zyban, Aplenzin, Contrave) Naltrexone (Vivitrol, Contrave)	
	Anti-ADHD Agents	Amphetamine (Adderall) Atomoxetine (Strattera) Clonidine (Kapvay) Dextroamphetamine (Dexedrine) Guanfacine (Intuniv) Lisdexamfetamine (Vyvanse)	Dexmethylphenidate (Focalin) Methylphenidate (Ritalin)	
	Anticonvulsants	Brivaracetam (Briviact) Carbamazepine (Tegretol, Carbatrol, Epitol) Eslicarbazepine (Aptiom) Ethosuximide (Zarontin) Ezogabine (Potiga) Felbamate (Felbatol) Fosphenytoin (Cerebyx) Gabapentin (Neurontin) Lacosamide (Vimpat) Lamotrigine (Lamictal) Levetiracetam (Keppra) Oxcarbazepine (Trileptal, Oxtellar XR) Perampanel (Fycompa) Phenobarbital (Luminal) Phenytoin (Dilantin) Pregabalin (Lyrica) Primidone (Mysoline) Rufinamide (Banzel) Tiagabine (Gabitril) Topiramate (Topamax) Valproic Acid (Depakote, Depakene) Vigabatrin (Sabril) Zonisamide (Zonegran)		
	Antidementia Agents	Donepezil (Aricept) Galantamine (Razadyne) Memantine (Namenda)		

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CATEGORY	DRUG CLASS	STANDARD PRECAUTIONS	USE WITH CAUTION	CONSIDER ALTERNATIVES
Psychotropic	Antidepressants	Amoxapine (Amoxapine) Desipramine (Norpramin) Desvenlafaxine (Pristiq) Duloxetine (Cymbalta) Fluoxetine (Prozac, Sarafem) Fluvoxamine (Luvox) Levomilnacipran (Fetzima) Maprotiline (Ludiomil) Mirtazapine (Remeron) Nefazodone (Serzone) Nortriptyline (Pamelor) Paroxetine (Paxil, Brisdelle) Protriptyline (Vivactil) Venlafaxine (Effexor) Vilazodone (Viibryd) Vortioxetine (Trintellix)	Sertraline (Zoloft)	Amitriptyline (Elavil) Citalopram (Celexa) Clomipramine (Anafranil) Doxepin (Silenor) Escitalopram (Lexapro) Imipramine (Tofranil) Trimipramine (Surmontil)
	Antipsychotics	Aripiprazole (Abilify) Asenapine (Saphris) Brexpiprazole (Rexulti) Chlorpromazine (Thorazine) Clozapine (Clozaril) Fluphenazine (Prolixin) Haloperidol (Haldol) Iloperidone (Fanapt) Loxapine (Loxitane, Adasuve) Lurasidone (Latuda) Olanzapine (Zyprexa) Paliperidone (Invega) Perphenazine (Trilafon) Pimavanserin (Nuplazid) Pimozide (Orap) Quetiapine (Seroquel) Risperidone (Risperdal) Thioridazine (Mellaril) Thiothixene (Navane) Trazodone (Oleptro) Trifluoperazine (Stelazine) Ziprasidone (Geodon)	Tetrabenazine (Xenazine)	
	Benzodiazepines	Alprazolam (Xanax) Clobazam (Onfi) Clonazepam (Klonopin)	Diazepam (Valium)	
	Other Neurological Agents	Dextromethorphan / Quinidine (Nuedexta) Flibanserin (Addyi)		



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Dosing Guidance

\otimes	Amitriptyline	Increased Sensitivity to Amitriptyline (CYP2C19: Ultra-Rapid Metabolizer)	INFORMATIVE
	Elavil	Consider an alternative drug, or consider prescribing amitriptyline at standard dose and monitor the plasma concentrations of amitriptyline and nortriptyline to guide dose adjustments.	à
\otimes	Citalopram	Insufficient Response to Citalopram (CYP2C19: Ultra-Rapid Metabolizer)	ACTIONABLE
	Celexa	At standard label-recommended dosage, citalopram plasma concentrations levels are expected to be low w result in a loss of efficacy. Consider an alternative medication. If citalopram is warranted, consider increasing maximum of 150% and titrate based on the clinical response and tolerability.	hich may 3 the dose to a
\otimes	Clomipramine	Increased Sensitivity to Clomipramine (CYP2C19: Ultra-Rapid Metabolizer)	INFORMATIVE
	Anafranil	Consider an alternative drug, or consider prescribing clomipramine at standard dose and monitor the plasm concentrations of clomipramine and desmethyl-clomipramine to guide dose adjustments.	าล
\otimes	Doxepin	Increased Sensitivity to Doxepin (CYP2C19: Ultra-Rapid Metabolizer)	INFORMATIVE
	Silenor	Consider an alternative drug, or consider prescribing doxepin at standard dose and monitor the plasma con doxepin and desmethyl-doxepin to guide dose adjustments.	centrations of
\otimes	Escitalopram	Insufficient Reponse to Escitalopram (CYP2C19: Ultra-Rapid Metabolizer)	ACTIONABLE
	Lexapro	At standard label-recommended dosage, escitalopram plasma concentrations levels are expected to be low result in a loss of efficacy. Consider an alternative medication. If escitalopram is warranted, consider increasi to a maximum of 150% and titrate based on the clinical response and tolerability.	which may ing the dose
\otimes	Imipramine	Increased Sensitivity to Imipramine (CYP2C19: Ultra-Rapid Metabolizer)	INFORMATIVE
	Tofranil	Consider an alternative drug, or consider prescribing imipramine at the standard dose and monitor the plas concentrations of imipramine and desipramine to guide dose adjustments.	ma
\otimes	Trimipramine	Increased Sensitivity to Trimipramine (CYP2C19: Ultra-Rapid Metabolizer)	INFORMATIVE
	Surmontil	Consider an alternative drug, or consider prescribing trimipramine at standard dose and monitor the plasma concentrations of trimipramine and desmethyl-trimipramine to guide dose adjustments.	а
	Bupropion	Decreased Response to Bupropion for Smoking Cessation (ANKK1: Altered DRD2 function)	INFORMATIVE
	Wellbutrin, Zyban, Aplenzin, Contrave	Smoking Cessation: The patient's genotype result is associated with a positive response to nicotine replacer and a lesser response to bupropion treatment.	nent therapy
	Dexmethylphenid ate	Decreased Response to Dexmethylphenidate (COMT: Intermediate COMT Activity)	INFORMATIVE
	Focalin	The patient's genotype result predicts a less optimal response to dexmethylphenidate. Dosage should be in according to the needs and response of the patient. Therapy should be initiated in small doses, with gradua increments.	dividualized ıl weekly



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			ACC #: DOB: SEX:	1607190464 1/1/1753 Female	RECEIVED DATE: REPORT DATE:	7/19/2016 8/11/2016	1^ABC CLINICAL LAB
	Diazepam Valium	Possible Altered CYP2C19 rapid and metabolizers. Howe	Sensitiv ultra-rap ver, ther	vity to Diazepam (CYP pid metabolizers metabo re is insufficient data to a	2 C19: Ultra-Rapid N lize diazepam and nor llow calculation of dos	/letabolizer) diazepam mor e adjustment	INFORMATIVE re rapidly than normal when diazepam is prescribed.
		Monitor the patient	's respor	nse and adjust the dose a	accordingly.		
<u>^</u>	Methylphenidate	Decreased Respo	nse to	Methylphenidate (CO	MT: Intermediate C	OMT Activit	y) INFORMATIVE
	Ritalin	The patient's genot according to the ne increments.	ype resu eds and	It predicts a less optimal response of the patient.	response to methylph Therapy should be init	enidate. Dosa iated in small	ge should be individualized doses, with gradual weekly
	Naltrexone	Altered Response	e to Nal	Itrexone (OPRM1: Nor	mal OPRM1 Function	on)	INFORMATIVE
	Vivitrol, Contrave	Treatment of alcoho outcome with naltre respond to this drug	ol depen exone the g, and m	dence: the patient has th erapy. Naltrexone-treate ay have higher relapse ra	e wild-type genotype d patients not carrying ates than those who ar	for OPRM1 th the 118A> G e carriers of th	at is associated with a poorer mutation are less likely to nis mutation.
	Sertraline Possible Reduced Response to Sertraline (CYP2C19: Ultra-Rapid Metabolizer)					INFORMATIVE	
	Zoloft	Sertraline can be pr recommended mair	escribed ntenance	l at standard label-recom e dosing, consider an alte	mended dosage and a rnative medication.	dministration	If patient does not respond to
	Tetrabenazine	Normal Sensitivit	y to Te	trabenazine (CYP2D6	: Normal Metaboliz	er)	ACTIONABLE
	Xenazine	Individualization of week, 25 mg (12.5 r daily dose in CYP2 events occur, titration resolve, consider wi	dose wit ng twice D6 norn on shoul thdrawa	th careful weekly titration daily); then slowly titrate nal metabolizers is 100 d be stopped and the do l of tetrabenazine.	n is required. The first v e at weekly intervals by mg, with a maximun ise of tetrabenazine sh	veek's starting [•] 12.5 mg to a • single dose ould be reduc	dose is 12.5 mg daily; second tolerated dose. The maximum of 37.5 mg . If serious adverse ed. If the adverse event(s) do not
	Alprazolam	Normal Response	e to Alp	orazolam			INFORMATIVE
-	Xanax	Pharmacogenetic g polymorphisms of t guidance: The conc prolonged sedation exaggerated sedation such as ketoconazo which results in a lo	guidanc hese ger comitant . Impairr ve effect: le, itraco ss of effi	e: Alprazolam is primarily nes are not expected to a c use of alprazolam with 0 ment of motor skills are a s. If possible, alprazolam mazole and ritonavir. Dru icacy.	y eliminated by metab iffect the efficacy or sa CYP3A4 inhibitors may ilso observed with som should be avoided in igs that induce CYP3A	olism via CYP fety profiles o result in incre ne combinatio patients receiv enzymes may	A4 and CYP3A5. Genetic f this drug. Polypharmacy ased alprazolam levels and ns. Monitor patients for ing strong inhibitors of CYP3A4 decrease alprazolam levels,
\checkmark	Amoxapine	Normal Sensitivit	y to An	noxapine (CYP2D6: N	ormal Metabolizer)		INFORMATIVE
	Amoxapine	Amoxapine can be	orescribe	ed at standard label reco	mmended-dosage and	administratic	n.
\checkmark	Amphetamine	Good Response t	o Amp	hetamine salts (COM	T: Intermediate CON	/IT Activity)	INFORMATIVE
-	Adderall	The patient's genot administered at the	ype resu lowest e	It predicts a favorable reset for the set of	sponse to amphetamir le should be individual	ne stimulants. Iy adjusted.	Amphetamines should be

✓ Aripiprazole Abilify Normal Sensitivity to Aripiprazole (CYP2D6: Normal Metabolizer) Collection Date: 7/19/2016 Doctor ✓ Aripiprazole Abilify Normal Sensitivity to Aripiprazole (CYP2D6: Normal Metabolizer) Aripiprazole can be prescribed at standard label-recommended dosage and administration. Careful recommended until a favorable response is achieved	R JONES CLINICAL LAB ACTIONABLE titration is
ACC #: 1607190464 RECEIVED DATE: 7/19/2016 DOB: 1/1/1753 REPORT DATE: 8/11/2016 SEX: Female SEX: Female Normal Sensitivity to Aripiprazole (CYP2D6: Normal Metabolizer) Abilify Aripiprazole can be prescribed at standard label-recommended dosage and administration. Careful recommended until a favorable response is achieved	CLINICAL LAB ACTIONABLE titration is
 Aripiprazole Abilify Normal Sensitivity to Aripiprazole (CYP2D6: Normal Metabolizer) Aripiprazole can be prescribed at standard label-recommended dosage and administration. Careful recommended until a favorable response is achieved 	ACTIONABLE titration is
recommended until a lavorable response is deilleved.	
<u>Daily dosing</u> (oral or intramuscular): the daily maintenance and maximum recommended doses are respectively. Reduce dose by 50% if a CYP2D6 inhibitor or a CYP3A4 inhibitor is coadministered. Re- of the usual dose if both a CYP2D6 inhibitor and a CYP3A4 inhibitor are coadministered.	10-15 mg and 30 mg, duce the dose to 25%
<u>Monthly dosing</u> (intramuscular): the starting and maintenance monthly recommended dose is 400 r monthly dose to 300 mg if a CYP2D6 inhibitor or a CYP3A4 inhibitor is coadministered to patients re at 400 mg, and reduce dose to 200 mg in patients receiving aripiprazole at 300 mg. Reduce the dos CYP2D6 inhibitor and a CYP3A4 inhibitor are coadministered to patients receiving aripiprazole at 40 dose to 160 mg in patients receiving aripiprazole at 300 mg.	ng. Reduce the eceiving aripiprazole ;e to 200 mg if both a)0 mg, and reduce the
Asenapine Normal Response to Asenapine	INFORMATIVE
Saphris Pharmacogenetic Guidance: Asenapine is extensively metabolized to more than 38 inactive metabolism route occurs via direct glucuronidation catalyzed by UGT1A4. Also important but less p demethylation pathway as well as the oxidative reactions catalyzed by CYP1A2 with contributions fr CYP2D6. There are no studies documenting the effect of genetic polymorphisms of these metaboliz asenapine disposition and there are no available genetically guided drug selection or dosing recom Asenapine should be prescribed based on the clinical response and tolerability of the individual pat guidance: Coadministration of asenapine with CYP1A2 inhibitors such as fluvoxamine should be ap as asenapine plasma concentrations will increase resulting in more side effects. Cigarette smoking, v activity, has a limited effect on asenapine plasma concentrations. Asenapine is a weak inhibitor of C coadministration with paroxetine (both a substrate and an inhibitor of CYP2D6) should be approach -term therapy with strong enzyme inducers (e.g. carbamazepine, phenytoin, rifampin) may decrease and dosage adjustment may be needed.	oolites. The primary ronounced is the om CYP3A4 and ting enzymes on mendations. tient. Polypharmacy oproached with caution which induces CYP1A2 CYP2D6 and its ned with caution. Long a asenapine exposure
Atomoxetine Normal Sensitivity to Atomoxetine (CYP2D6: Normal Metabolizer)	ACTIONABLE
StratteraAtomoxetine can be prescribed at standard label-recommended dosage and administration. Carefu recommended until a favorable response is achieved. The maximum recommended daily dose is 1.4 with a body weight up to 70 kg, and 100 mg for patients with a body weight above 70 kg.	l titration is 1 mg/kg for patients
Brexpiprazole Normal Sensitivity to Brexpiprazole (CYP2D6: Normal Metabolizer)	ACTIONABLE
Rexulti Brexpiprazole can be prescribed at standard label-recommended dosage and administration. Carefu recommended until a favorable response is achieved.	l titration is
<u>Adjunctive Treatment of Major Depression Disorder</u> : the recommended starting doses are 0.5 mg o daily maintenance doses and maximum recommended dose are 1-2 mg and 3 mg, respectively. <u>Sch</u> recommended starting dose is 1 mg once daily. The daily maintenance doses and maximum recommg and 4 mg, respectively.	r 1 mg once daily. The <u>iizophrenia</u> : the mended dose are 2-4
<u>Dose adjustments with comedications</u> : reduce dose by 50% if a strong CYP2D6 inhibitor or a strong coadministered. Administer a quarter of the usual dose if both a strong/moderate CYP2D6 inhibitor strong/moderate CYP3A4 inhibitor are coadministered. Double usual dose over 1 to 2 weeks if a str coadministered.	J CYP3A4 inhibitor is and a ong CYP3A4 inducer is
Brivaracetam Normal Sensitivity to Brivaracetam (CYP2C19: Ultra-Rapid Metabolizer)	ACTIONABLE
<i>Briviact</i> Brivaracetam is primarily metabolized by hydrolysis and to a minor extent by hydroxylation, which is CYP2C19. Brivaracetam can be prescribed at the standard label recommended dosage.	s mediated by

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	Carbamazepine	Normal Respons	e to Cai	bamazepine			INFORMATI
	Tegretol, Carbatrol, Epitol	Pharmacogenetic be used to identify syndrome, Stevens- therapeutic window metabolized by epo plasma concentratii CYP3A5*1/*1 or *1/ dosage of carbama significantly decrea inducers.	guidanc patients Johnson v, is exter oxide hyc ons are 3 (*3 genot zepine sl se carbai	e: Genotype results ob at risk for severe cutan syndrome (SJS) and to nsively metabolized by drolase (EPHX1) to an ir 10% higher in individua types. The clinical impa nould be decreased in p mazepine levels, and do	tained from the pharma eous adverse reactions xic epidermal necrolysi CYP3A4/5 to its active e nactive metabolite. Preli ls with the CYP3A5*3/*3 ct of this change is poo poatients receiving CYP3. ose adjustments are rec	acogenetic tes such as antico s (TEN). Carba epoxide metal minary studie 8 genotype co rly document A4 inhibitors. ommended w	st performed in this patient canno onvulsant hypersensitivity mazepine, a drug with a narrow bolite, which is further is indicate that carbamazepine ompared to those with ed. Polypharmacy guidance: Th Enzyme-inducing drugs when the drug is used with other
\	Chlorpromazine Thorazine	Normal Sensitivit Chlorpromazine is r at standard label re is achieved.	ty to Ch netaboli commen	lorpromazine (CYP2 zed by CYP2D6, CYP3A ded-dosage and admir	2D6: Normal Metabo 4 and flavin-containing histration. Careful titrati	lizer) monooxygen on is recomm	INFORMATIN ases. This drug can be prescribed ended until a favorable response
	Clobazam	Normal Sensitivi	ty to Clo	obazam (CYP2C19: L	Iltra-Rapid Metaboli	zer)	ACTIONAB
		function. Rapid and metabolite of cloba prescribed. Therefo standard label-reco clinical efficacy and concentrations of c Recommended dail weight: starting dos	l ultra-ra izam. Ho re, the do mmende tolerabil lobazam y dosing se 10 mg	pid metabolizers have a wever, there is insuffici- osing recommendation ed dosage and adminis lity. Do not proceed wit and its active metaboli : ≤30 kg body weight: , day 7: 20 mg and day	a higher capacity to me ent data to allow calcula for normal metabolize tration. Individualize do th dose escalation more te require 5 and 9 days starting dose 5 mg; day 14: 40 mg.	tabolize N-de ation of dose rs is proposed sing within ea rapidly than , respectively, 7: 10 mg and	smethylclobazam, the active adjustment when clobazam is d. Clobazam can be prescribed at ach body weight group, based or weekly, because serum to reach steady state. I day 14: 20 mg; >30 kg body
	Clonazepam	Normal Respons	e to Clo	nazepam			INFORMATI
	Klonopin	Pharmacogenetic Polypharmacy gui acetylated by N-ace inducers.	guidanc dance: c etyltransf	e: No genetically guide lonazepam is extensive erases. This drug shoul	ed drug selection or dos ely metabolized by CYP d be used with caution	ing recomme 8A4 to an ami when prescril	ndations are available. no metabolite that is further bed with CYP3A4 inhibitors or
	Clonidine	Normal Sensitivi	ty to Clo	onidine (CYP2D6: No	ormal Metabolizer)		INFORMATI
	Карчау	Approximately 40-6 remainder undergo CYP3A and CYP1A2 should be individua	50% of ar ing hepa Clonidi alized acc	n orally administered du itic metabolism. CYP2D ne can be prescribed at cording to the therapeu	ose of clonidine is elimi 6 plays a major role in t standard label recomn tic needs and response	nated unchan clonidine oxid nended-dosag of the patien	ged by the kidneys, with the lative metabolism, followed by ge and administration. The dose t.
	Clozapine	Normal Sensitivi	ty to Clo	ozapine (CYP2D6: N	ormal Metabolizer)		ACTIONAB
	Clozaril	Clozapine can be p recommended with	rescribec monitor	l at standard label-reco ing until a favorable re	mmended dosage and sponse is achieved.	administratio	n. Careful titration is
	Clozapine	Normal Respons	e to Clo	zapine (CYP1A2: No	rmal Metabolizer- P	ossible Indu	icibility) INFORMATI
	Clozaril	Clozapine can be p recommended with	rescribec	l at standard label-reco ing until a favorable re	mmended dosage and	administratio	n. Careful titration is

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✓	Desipramine Norpramin	Normal Sensitivit	sex: y to De	Female esipramine (CYP2D6: N bed at standard label-reco	ormal Metabolize	r) nd administrat	ACT	TIONABLE
\checkmark	Desvenlafaxine Pristiq	Normal Sensitivit	y to De be presc	esvenlafaxine (CYP2D6	: Normal Metaboli commended dosage	zer) and administ	ACT	FIONABLE
✓	Dextroamphetami ne Dexedrine	Good Response t The patient's genoty administered at the	o Dexti /pe resu lowest e	roamphetamine (COM It predicts a favorable resp effective dose, and dosage	T: Intermediate CC ponse to amphetamin should be individua	DMT Activity ne stimulants. Ily adjusted.	r) INFO Dextroamphetamine sho	ORMATIVE
✓	Dextromethorpha n / Quinidine <i>Nuedexta</i>	Normal Sensitivit Patients with Pseu the dextromethorph Dextromethorphan-	y to De dobulba han-quin quinidin	extromethorphan-Quin ar Affect: quinidine is a sp nidine combination to incre ne can be prescribed accor	idine (CYP2D6: No becific inhibitor of CY ease the systemic bio rding to standard lab	prmal Metal P2D6-depend availability of el-recommen	ent oxidative metabolism dextromethorphan. ded dosage and adminis	TIONABLE m used in stration.
\checkmark	Donepezil Aricept	Normal Response Donepezil can be pr recommended until	e to Do escribec a favora	nepezil (CYP2D6: Norr d at standard label-recom able response is achieved.	nal Metabolizer) nended dosage and	administratio	INFO n. Careful titration is	PRMATIVE
\checkmark	Duloxetine Cymbalta	Normal Sensitivit	y to Du rescribe	uloxetine (CYP2D6: No	rmal Metabolizer)	administratic	INFO n.	PRMATIVE
✓	Eslicarbazepine <i>Aptiom</i>	Normal Response Pharmacogenetic g be used to identify syndrome, Stevens- converted by a redu excretion unchange are available. Polyp significantly decreas	e to Esli guidance patients Johnson actase to d and as harmace sed, and	icarbazepine e: Genotype results obtain at risk for severe cutaneou syndrome (SJS) and toxic its active metabolite, eslic a glucuronide conjugate. y guidance: In the presen higher doses of the drug	ned from the pharma us adverse reactions epidermal necrolysis carbazepine. Eslicarba No genetically guide nce of enzyme-induci may be needed.	cogenetic tes such as anticc ; (TEN). Eslicar azepine is elin ed drug select ing drugs, esli	INFO t performed in this patien nvulsant hypersensitivity bazepine acetate (prodru ninated primarily by rena ion or dosing recommer carbazepine plasma leve	PRMATIVE nt cannot y ug) is il ndations els are
✓	Ethosuximide Zarontin	Normal Response Pharmacogenetic g Polypharmacy guid with caution when p doses may be need	e to Eth guidance dance: e prescribe ed when	e: No genetically guided of thosuximide is extensively ad with CYP3A4 inhibitors. the drug is coadministere	drug selection or dos v metabolized by CYF Inducers of CYP3A4 ed with enzyme-induc	ing recomme '3A4, and thei increase etho cing drugs.	INFO ndations are available. refore this drug should b suximide clearance, and	DRMATIVE be used higher

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			SEX: Female	REPORT DATE:	0/11/2010	T ABO CLINICAL LAD
\checkmark	Ezogabine	Normal Response	e to Ezogabine			INFORMATIV
	Potiga	Pharmacogenetic metabolite, no dose metabolized primar oxidative metabolis are not expected to increase ezogabine enzyme-inducing ar	guidance: although NAT2 rapic e adjustment is necessary in the ily via glucuronidation (by UGT m of ezogabine by cytochrome affect its efficacy or toxicity pro clearance by 30%, and dose inc ntiepileptic drugs.	d acetylators have a 30% se individuals. Polypha 1A4 and UGT1A1) and a P450 enzymes, and ger ofiles. Enzyme-inducing crease should be consid	b increase in t rmacy guida cetylation (by netic variatior drugs such a ered when th	the exposure of ezogabine active nce: Ezogabine is extensively (NAT2). There is no evidence of is in these metabolizing enzymes s carbamazepine and phenytoin is drug is coadministered with
√	Felbamate	Normal Response	e to Felbamate			INFORMATIV
	Felbatol	Pharmacogenetic of Polypharmacy gui 50% is present as m minor for drug elim enzyme-inducing au should be titrated s	guidance: No genetically guide dance: About 40-50% of absorl letabolites and conjugates. Felb ination when the drug is given ntiepileptic drugs, which results lowly, and dose adjustment mu	ed drug selection or dos bed felbamate dose app bamate is a substrate of as a monotherapy. This in a 30-50% decrease in st be considered in pres	ing recomme bears unchang CYP3A4 and pathway is er n felbamate p sence of indu	ndations are available. ged in urine, and an additional CYP2E1, but these pathways are nhanced by concomitant use of olasma concentrations. Felbamate cers.
	Flibanserin	Normal Exposure	e to Flibanserin (CYP2C19: U	Iltra-Rapid Metaboliz	zer)	ACTIONABL
	Addyi	Flibanserin is prima patient is expected follow standard pre	rily metabolized by CYP3A4 and to have a normal clearance and cautions.	d, to a lesser extent, by (l a typical exposure to fl	CYP2C19. The ibanserin. Use	genotype results predict that the e label-recommended dosage and
\checkmark	Fluoxetine	Normal Sensitivit	y to Fluoxetine (CYP2D6: N	lormal Metabolizer)		INFORMATIV
	Prozac, Sarafem	Fluoxetine is metab CYP2D6, CYP2C19, administration.	olized to its active metabolite n CYP2C9, and CYP3A4. Fluoxetin	orfluoxetine and to oth e can be prescribed at s	er metabolite tandard labe	s by multiple enzymes including I-recommended dosage and
\checkmark	Fluphenazine	Normal Sensitivit	y to Fluphenazine (CYP2D6	5: Normal Metabolize	er)	INFORMATIV
-	Prolixin	Fluphenazine can b cautiously with oral dosage are apparer dosage adjustment	e prescribed at standard label r or parenteral fluphenazine hyd it, an equivalent dose of flupher s may be necessary.	ecommended-dosage a rochloride. When the pl nazine decanoate (IM o	nd administra narmacologic ⁻ SC) may be	ation. Therapy must be initiated al effects and an appropriate administered and subsequent
\checkmark	Fluvoxamine	Normal Sensitivit	y to Fluvoxamine (CYP2D6	: Normal Metabolize	r)	ACTIONABL
	Luvox	Fluvoxamine can be recommended until	prescribed at standard label re a favorable response is achieve	commended-dosage ar ed.	nd administra	tion. Careful titration is
\checkmark	Fosphenytoin	Normal Sensitivit	y to Fosphenytoin (CYP2CS	9: Normal Metabolize	er)	ACTIONABL
	Cerebyx	The genotype resul at a standard loadir after starting therap	is indicate that the patient is a (ig dose and a standard mainter iy.	CYP2C9 substrate norma nance dose. Evaluate res	al metabolize ponse and se	r. Fosphenytoin can be prescribed rum concentrations 7-10 days
\checkmark	Gabapentin	Normal Response	e to Gabapentin			INFORMATIV
-	Neurontin	Pharmacogenetic Polypharmacy gui Genetic variations in can be prescribed a	guidance: no genetically guide dance: Gabapentin is eliminate n these metabolizing enzymes a t standard label-recommended	d drug selection or dosi d primarily through rena are not expected to affe dosage and administra	ng recomme al excretion a ct its efficacy tion.	ndations are available. nd is not metabolized by CYPs. or toxicity profiles. Gabapentin

			PATIENT INFORMATION	SPECIMEN DETAILS	3	ORDERED BY
P	N Primał	lealth	NAME: JILLIAN DOE ACC #: 1607190464	COLLECTION DATE: RECEIVED DATE:	7/19/2016 7/19/2016	DOCTOR JONES
			DOB: 1/1/1753 SEX: Female	REPORT DATE:	8/11/2016	1^ABC CLINICAL LAB
\checkmark	Galantamine	Normal Sensitivit	ty to Galantamine (CYP2D6:	Normal Metabolize	r)	ACTIONABLE
	Razadyne	Galantamine can be with weekly titration	e prescribed at standard label-re n is recommended.	commended dosage ar	nd administra	tion. Individualization of dose
\checkmark	Guanfacine	Normal Response	e to Guanfacine			INFORMATIVE
	Intuniv	Pharmacogenetic or dosing recomme response and tolera should be reduced ketoconazole, itracc should be increased recommended dose St. John's wort etc.) recommended dose	guidance: Guanfacine is predon endations are available and guan ability of the individual patient. If to one half of the standard do onazole, indinavir, ritonavir, nefa d to the standard recommended e when used in combination with . When the CYP3A4 inducer is di e within 7-14 days.	ninantly metabolized by facine extended-releas Polypharmacy guidan se when co-medicated zodone). When the stro dose. Guanfacine dose n a strong CYP3A4 indu scontinued, the dose sl	v CYP3A4. Note should be to the should be to the certain the dose with a strong ong CYP3A4 is should be in cer (e.g., phenould be reduced by the should by the should by the should by the should be reduced by the should by	o genetically guided drug selection itrated based on the clinical of guanfacine extended-release g CYP3A4 inhibitor (e.g., nhibitor is discontinued, the dose icreased up to double the nytoin, carbamazepine, rifampin, uced to the standard
\checkmark	Haloperidol	Normal Sensitivit	ty to Haloperidol (CYP2D6:	Normal Metabolizer)	ACTIONABLE
	Haldol	Haloperidol can be recommended until	prescribed at standard label-rec l a favorable response is achieve	ommended dosage and d.	d administrat	ion. Careful titration is
√	lloperidone	Normal Sensitivi	ty to lloperidone (CYP2D6: I	Normal Metabolizer)	1	ACTIONABLE
	Fanapt	lloperidone can be slowly from a low si could indicate the c initiate further evalu	prescribed at standard label-rec tarting dose to avoid orthostatic occurrence of cardiac arrhythmia uation, including cardiac monito	ommended dosage and hypotension. If patient s (e.g., dizziness, palpit ring.	d administrat s taking ilope ations, or syn	ion. Iloperidone must be titrated eridone experience symptoms that cope), the prescriber should
\checkmark	Lacosamide	Normal Sensitivit	ty to Lacosamide (CYP2C19:	Ultra-Rapid Metabo	lizer)	INFORMATIVE
	Vimpat	CYP2C19 is partly ir prescribed at stand.	nvolved in the metabolism of lac ard label-recommended dosage	osamide, along with CY and administration.	P2C9 and CY	'P3A, and this drug can be
\checkmark	Lamotrigine	Normal Response	e to Lamotrigine			INFORMATIVE
	Lamictal	Pharmacogenetic of be used to identify syndrome, Stevens- glucuronidation, wh insufficient studies response. No genet Enzyme-inducing d maintain therapeuti lamotrigine levels a with a slow titration	guidance: Genotype results obt patients at risk for severe cutane Johnson syndrome (SJS) and too nich is mediated primarily by UG documenting the impact of gen- tically guided drug selection or of rugs increase lamotrigine cleara ic concentrations. Coadministrat nd may result in serious lamotrig a schedule is recommended whe	ained from the pharma eous adverse reactions xic epidermal necrolysis T1A4 with some contril etic polymorphisms of t dosing recommendation nce significantly, and hi ion of valproic acid, an gine adverse effects (ne n lamotrigine is added	cogenetic tes such as antico (TEN). Lamo pution from L these metabo is are availab gher doses o inhibitor of L urological ar to existing va	st performed in this patient cannot onvulsant hypersensitivity trigine is metabolized by JGT1A1 and UGBT2B7. There are olizing enzymes on lamotrigine ole. Polypharmacy guidance: of this drug are required to JGT enzymes, increases and cutaneous). A low starting dose alproic acid treatment.
\checkmark	Levetiracetam	Normal Response	e to Levetiracetam			INFORMATIVE
	Keppra	Pharmacogenetic of Polypharmacy gui excreted unchanged levetiracetam plasm	guidance: No genetically guide dance: Levetiracetam is minima d in urine. Coadministration of e na levels.	d drug selection or dos lly metabolized by non- nzyme-inducing antiep	ing recomme -CYP enzyme ileptic drugs	endations are available. s (esterases) and is primarily produce modest decreases in

			PATIE		SPECIMEN DETAILS	;	ORDERED BY
	D Primal	lealth	NAME	: JILLIAN DOE	COLLECTION DATE:	7/19/2016	DOCTOR JONES
		Carcin	ACC # DOB: SEX:	: 1607190464 1/1/1753 Female	RECEIVED DATE: REPORT DATE:	7/19/2016 8/11/2016	1^ABC CLINICAL LAB
./	Levomilnacipran	Normal Response	e to Lev	vomilnacipran			INFORMATIVE
V	Fetzima	Pharmacogenetic by CYP3A4, with mi in urine as unchang expected to have a recommendations a coadministered with	guidance nor con ed levor significa are availa n strong	te: Levomilnacipran is m tributions by CYP2C8, CV milnacipran, and 18% as ant impact on levomilnac able. Polypharmacy gu i CYP3A4 inhibitors, such	oderately metabolized (P2C19, CYP2D6, and C N-desethyl levomilnaci ipran exposure. no ger idance: the daily levom as ketoconazole, itrazo	by desethylat YP2J2. More pran. Genetic ietically guide ilnacipran do pnazole, and i	tion, which is catalyzed primarily than 58% of the dose is excreted polymorphisms of CYPs are not ed drug selection or dosing se should not exceed 80 mg when ritonavir.
\checkmark	Lisdexamfetamine	Good Response	o Lisde	examfetamine (COM1	: Intermediate COM	T Activity)	INFORMATIVE
	Vyvanse	The patient's genot administered at the	ype resu lowest	It predicts a favorable re effective dose, and dosa	esponse to amphetamir ge should be individual	ne stimulants. Ily adjusted.	Lisdexamfetamine should be
\checkmark	Loxapine	Normal Respons	e to Lo	xapine			INFORMATIVE
	Loxitane, Adasuve	Pharmacogenetic metabolites formed contributions from these metabolizing dosing recommend concurrent use of L antidepressants, ge can increase the ris reduction/modifica concomitant use wi glaucoma and urina	L Loxapi CYP3A4 enzyme ations. I oxapine neral an < of resp tion of C th other ny reten	The complete is metabolized in the metabolized of the complete is metabolized of the complete is on Loxapine disposition Polypharmacy guidance with other CNS depressest esthetics, phenothiazine privatory depression, hypocry depression, hypocry depression, if used of anticholinergic drugs cantion.	a hydroxylation and ox a hydroxylation and ox e are no studies docun n and there are no avai e: Loxapine is a central ants (<i>e.g.</i> , alcohol, opio s, sedative/hypnotics, n otension, profound seda concomitantly with Lox an increase the risk of a	ver following idation cataly nenting the e lable genetic nervous syste id analgesics, nuscle relaxar ation, and syr apine. Loxapi dverse reactio	oral administration, with multiple zed by CYP1A2 along with ffect of genetic polymorphisms of ally-guided drug selection or em (CNS) depressant. The benzodiazepines, tricyclic nts, and/or illicit CNS depressants) acope. Therefore, consider dose ne has anticholinergic activity and ons, including exacerbation of
\checkmark	Lurasidone	Normal Respons	e to Lu	rasidone			ACTIONABLE
	Latuda	Pharmacogenetic available. Polyphar increase in lurasido not be administer with moderate CYP strong inducers of moderate CYP3A4 in the CYP3A4 inducer	guidanc macy g ne plasn ad with 3A4 inhi CYP3A nducer,	ce: Lurasidone is metabo uidance: The concomita na concentrations, which strong CYP3A4 inhibit bitors. Monitor patients should not be adminis it may be necessary to ir	lized by CYP3A4. No go nt use of lurasidone wi could increase or prolo ors. Lurasidone dose sh receiving lurasidone an tered with lurasidone ncrease lurasidone dose	enotype-base th all CYP3A4 ong adverse o nould not exc d any CYP3A . If lurasidone after chronic	ed dosing adjustments are inhibitors may result in an drug effects. Lurasidone should eed 40 mg when administered 4 inhibitor. Rifampin or other e is used concomitantly with a c treatment (7 days or more) with
\checkmark	Maprotiline	Normal Sensitivi	ty to M	aprotiline (CYP2D6: N	Normal Metabolizer)		INFORMATIVE
	Ludiomil	Maprotiline can be	prescrib	ed at standard label reco	ommended-dosage and	d administrati	on.
√	Memantine	Normal Respons	e to Me	emantine			INFORMATIVE
-	Namenda	Pharmacogenetic departs of the patic metabolite. CYP450 documenting the erresponse. No genet Memantine is preder not expected to inter of drugs that use the ranitidine, quinidine	Guidand to three enzym fects of ically gu ominant eract wit e same e, and ni	ce: Memantine is excrete e inactive metabolites (N es do not play a significa genetic variability in me uided drug selection or o ly renally eliminated, and th memantine. Because r renal cationic system, in cotine, could potentially	ed predominantly uncha l-glucuronide, 6hydro ant role in the metaboli tabolizing enzymes or a losing recommendation d drugs that are substra nemantine is eliminated cluding hydrochlorothia result in altered plasma	anged in the oxy metabolities sm of meman organic cation has are availab tes and/or in d in part by to azide, triamte a levels of bo	urine. This drug undergoes partial e, and 1-nitroso-deaminated ntine. There are no studies nic transporters on memantine le. Polypharmacy Guidance: hibitors of the CYP450 system are ubular secretion, coadministration rene, metformin, cimetidine, th agents.

	Primal	lealth	NAME: JILLIAN DOE ACC #: 1607190464 DOB: 1/1/1753 SEX: Female	COLLECTION DATE: RECEIVED DATE: REPORT DATE:	7/19/2016 7/19/2016 8/11/2016	DOCTOR JONES
	Mirtazapine	Normal Sensitivit	ty to Mirtazapine (CYP2D6	: Normal Metabolizer)	ACTIONABL
	Remeron	Mirtazapine can be recommended until	prescribed at standard label-r a favorable response is achiev	ecommended dosage and /ed.	d administrat	ion. Careful titration is
	Nefazodone Serzone	Normal Sensitivit Nefazodone is meta chlorophenylpipera Nefazodone can be	ty to Nefazodone (CYP2De abolized by CYP3A4 to its activ zine metabolite which may co prescribed standard label reco	: Normal Metabolizer re metabolite m-chloroph ntribute to adverse event pmmended-dosage and a) enylpiperazii s, is further m administratio	INFORMATIV ne and other metabolites. The m- netabolized by CYP2D6. n.
	Nortriptyline Pamelor	Normal Sensitivit	ty to Nortriptyline (CYP2D e prescribed at standard label-	6: Normal Metabolize recommended dosage ar	r) nd administra	ACTIONABL
	Olanzapine	Normal Sensitivit	ty to Olanzapine (CYP2D6:	Normal Metabolizer)		ACTIONABL
	Zyprexa	Olanzapine can be p recommended until	prescribed at standard label-re a favorable response is achiev	commended dosage and /ed.	l administrati	on. Careful titration is
	Olanzapine Zyprexa	Normal Response Olanzapine can be p recommended with vegetables, heavy co carbamazepine) are	e to Olanzapine (CYP1A2: l prescribed at standard label-re monitoring until a favorable r offee consumption, char-grille known to increase CYP1A2 ac	Normal Metabolizer- I commended dosage and esponse is achieved. Extri d meats) smoking, and ce tivity.	Possible Inc I administrati Insic factors s ertain medica	ducibility) INFORMATIV on. Careful titration is such as diet (cruciferous ations (omeprazole, modafinil,
	Oxcarbazepine Trileptal, Oxtellar XR	Normal Response Pharmacogenetic g be used to identify syndrome, Stevens- by a reductase to its eliminated by direct or dosing recomme plasma levels of the	e to Oxcarbazepine guidance: Genotype results of patients at risk for severe cuta Johnson syndrome (SJS) and t s active monohydroxylated act t renal excretion, glucuronidat andations are available. Polypl e active metabolite (MHD) are	otained from the pharman neous adverse reactions e oxic epidermal necrolysis ive metabolite: 10-hydro: on, and hydroxylation (m harmacy guidance: In the decreased by 30%.	cogenetic tes such as antico (TEN). Oxcar xycarbazepin inimal). No g e presence of	INFORMATIV st performed in this patient canno onvulsant hypersensitivity bazepine (prodrug) in converted e (MHD). This active metabolite is genetically guided drug selection f enzyme-inducing drugs, the
	Paliperidone Invega	Normal Sensitivit	ty to Paliperidone (CYP2D) prescribed at standard label-	5: Normal Metabolizer	r) Id administra	ACTIONABL
\	Paroxetine Paxil, Brisdelle	Normal Sensitivit Paroxetine can be p recommended until	ty to Paroxetine (CYP2D6: prescribed at standard label-re l a favorable response is achiev	Normal Metabolizer) commended dosage and red.	administratio	ACTIONABL on. Careful titration is
	Perampanel Fycompa	Normal Response Pharmacogenetic g and CYP3A5. No ge Enzyme-inducing d should be increased Coadministration w Coadministration w by 20%.	e to Perampanel guidance: Perampanel is elim netically guided drug selection drugs decrease perampanel pla d when it is added to a stable t ith strong enzyme-inducers of ith perampanel with strong CN	nated either unchanged on or dosing recommendations by 5 soma concentrations by 5 herapy regimen containin hers than antiepileptic dr 'P3A4 inhibitors such as k	or following o tions are avai 0-60%, and ti ng enzyme-in ugs (e.g., rifa ætoconazole	INFORMATIV oxidative metabolism by CYP3A4 ilable. Polypharmacy guidance: he initial dosage of the drug nducing antiepileptic drugs. mpin) should be avoided. increases perampanel exposure

			PATIEN	NT INFORMATION	SPECIMEN DETAILS	3	ORDERED BY
	Primal	lealth	NAME:	: JILLIAN DOE	COLLECTION DATE:	7/19/2016	DOCTOR JONES
			ACC #: DOB: SEX:	1/1/1753 Female	REPORT DATE:	8/11/2016 8/11/2016	1^ABC CLINICAL LAB
\checkmark	Perphenazine	Normal Sensitivit	ty to Pe	rphenazine (CYP2D	6: Normal Metaboliz	er)	ACTIONABLE
	Trilafon	Perphenazine can b	e prescri	ibed at standard label	recommended dosage a	and administra	ation.
\checkmark	Phenobarbital	Normal Sensitivit	ty to Ph	enobarbital (CYP20	C19: Ultra-Rapid Meta	bolizer)	INFORMATIVE
	Luminal	CYP2C19 is partly in recommended dosa	ivolved in age and a	n the metabolism of p administration.	henobarbital, and this dr	ug can be pro	escribed at standard label-
\checkmark	Phenytoin	Normal Sensitivit	ty to Ph	enytoin (CYP2C9: N	lormal Metabolizer)		ACTIONABLE
	Dilantin	The genotype result a standard loading starting therapy.	s indicat: dose and	te that the patient is a d a standard maintena	CYP2C9 substrate norma nce dose. Evaluate respo	al metabolized Inse and serui	 Phenytoin can be prescribed at n concentrations 7-10 days after
	Pimavanserin	Normal Response	e to Pin	navanserin			INFORMATIVE
		by CYP2J2, CYP2D6, major active metabo Polypharmacy guid QT prolongation or (e.g., quinidine, prod (e.g., ziprasidone, ch of pimavanserin wit drug is coadministe result in reduced eff	and oth olite (AC- dance: P in comb cainamid nlorprom h CYP3A red with ficacy an	ner CYP and FMO enzy -279). There are no av Pimavanserin prolongs pination with other dru de) or Class 3 antiarrhy nazine, thioridazine), a 44 inhibitor increases p strong CYP3A inhibitor ad a dose increase may	mes. CYP3A4 is the majo ailable genetically-guide the QT interval and its u gs known to prolong QT thmics (e.g., amiodarone nd certain antibiotics (e.g. imavanserin exposure ar ors. Coadministration of p be needed.	or enzyme res d drug selecti se should be interval inclu e, sotalol), cert g., gatifloxacir nd a dose red pimavanserin	consible for the formation of its on or dosing recommendations. avoided in patients with known ding Class 1A antiarrhythmics ain antipsychotic medications moxifloxacin). Concomitant use uction of 50% is needed when this with strong CYP3A inducers may
\checkmark	Pimozide	Normal Sensitivit	y to Pir	mozide (CYP2D6: N	ormal Metabolizer)		ACTIONABLE
	Orap	Pimozide can be pro (adult) or 0.05 mg/k	escribed cg/day (c	at standard label-reco hildren). Doses may b	ommended dosage and a e increased to a maximu	administratior m of 10 mg/c	ı. Starting dose: 1 to 2 mg/day lay or 0.2 mg/kg/day.
\checkmark	Pregabalin	Normal Response	e to Pre	egabalin			INFORMATIVE
	Lyrica	Pharmacogenetic g Polypharmacy guid Genetic variations in be prescribed at sta	Juidance dance: P n these n indard la	e: No genetically guid Pregabalin is eliminate netabolizing enzymes Ibel-recommended do	ed drug selection or dos d primarily through rena are not expected to affe sage and administration	ing recomme l excretion an ct its efficacy	ndations are available. d is not metabolized by CYPs. or toxicity profiles. Pregabalin can
\checkmark	Primidone	Normal Sensitivit	ty to Pri	imidone (CYP2C19:	Ultra-Rapid Metaboli	zer)	INFORMATIVE
	Mysoline	CYP2C19 is partly in prescribed at standa	ivolved ir ard label	n the metabolism of p -recommended dosag	henobarbital, the active le and administration.	metabolite of	primidone, and this drug can be
\checkmark	Protriptyline	Normal Sensitivit	to Pro	otriptyline (CYP2D6	i: Normal Metabolize	r)	ACTIONABLE
	νιναςτιι	Protriptyline can be	prescrib	oed at standard label r	ecommended-dosage ar	nd administrat	ion.

			PATIENT INFORMATION	SPECIMEN DETAILS		ORDERED BY	
P	Primal	lealth	NAME: JILLIAN DOE ACC #: 1607190464 DOB: 1/1/1753 SEX: Female	COLLECTION DATE: RECEIVED DATE: REPORT DATE:	7/19/2016 7/19/2016 8/11/2016	DOCTOR JONES	
√	Quetiapine INFORM Seroquel Pharmacogenetic guidance: Quetiapine is predominantly metabolized to several metabolites by CYP3A4. CYP3A5 CYP2D6 are also responsible for quetiapine metabolism but their role in the overall metabolism of this drug is minor compared to CYP3A4. N-desalkylquetiapine, a pharmacologically active metabolite (responsible of the antidepressa effect) is further metabolized by CYP2D6 and CYP3A4. Preliminary studies have shown that genetic polymorphisms CYP3A4, CYP2D6 and CYP3A5 enzymes may be responsible in variable exposures to quetiapine and to its active metabolite N-desalkylquetiapine. However, the clinical significance of these changes is not established yet and no genetically guided drug selection or dosing recommendations are available. Quetiapine dose should be titrated ba the clinical response and tolerability of the individual patient. Polypharmacy guidance: Quetiapine dose should be intrated ba						
✓	Risperidone Risperdal	itraconazole, indina by 6 fold. Quetiapir treatment (e.g. > 7- When the CYP3A4 i Normal Sensitivit Risperidone can be recommended until	wir, ritonavir, nefazodone). When the dose should be increased up to -14 days) of a potent CYP3A4 indu inducer is discontinued, the dose sty to Risperidone (CYP2D6: N prescribed at standard label-reco I a favorable response is achieved.	the CYP3A4 inhibitor i 5 fold of the original acer (e.g., phenytoin, c should be reduced to ormal Metabolizer mmended dosage an	s discontinued dose when us arbamazepine the original le) d administrati	d, the dose should be increased sed in combination with a chronic e, rifampin, St. John's wort etc.). evel within 7-14 days. ACTIONABLE on. Careful titration is	
✓	Rufinamide Banzel	Normal Response to Rufinamide INFORMATIVE Pharmacogenetic guidance: No genetically guided drug selection or dosing recommendations are available. Polypharmacy guidance: Rufinamide is extensively metabolized by carboxylesterases. Cytochrome P450 enzymes are not involved in its metabolism. Therefore, genetic variations in these metabolizing enzymes are not expected to affect its efficacy or toxicity profiles. Coadministration of enzyme-inducing antiepileptic drugs produce modest decreases in rufinamide plasma levels, while coadministration of valproate increases the drug levels and requires dose adjustment. Patients stabilized on rufinamide should begin valproate therapy at a low dose, and titrate to a clinically effective dose. Similarly, patients on valproate should begin rufinamide at a lower dose.					
\checkmark	Thioridazine Mellaril	Normal Sensitivity to Thioridazine (CYP2D6: Normal Metabolizer) ACTI Thioridazine can be prescribed at standard label-recommended dosage and administration.					
✓	Thiothixene Navane	Normal Response to Thiothixene INFORMAT Pharmacogenetic guidance: Thiothixene is metabolized by UGTs and by cytochrome P450 enzymes (CYP1A2 and CYP3A4). No genetically guided drug selection or dosing recommendations are available. Polypharmacy guidance: It likely that strong enzyme inducers may lead to substantial decreases in thiothixene plasma concentrations with the potential for reduced effectiveness. Consider increasing the dose of thiothixene when concomitantly used with strong CYP3A4 inducers (e.g., carbamazepine).					
✓	Tiagabine Gabitril	Normal Response to Tiagabine INFORMATIVE Pharmacogenetic guidance: no genetically guided drug selection or dosing recommendations are available. Polypharmacy guidance: Tiagabine is extensively metabolized by CYP3A4, and therefore this drug should be used with caution when prescribed with CYP3A4 inhibitors. Inducers of CYP3A4 increase tiagabine clearance by 2-fold, and the initial dosage of the drug should be considered carefully when added to a stable therapy regimen containing enzyme- inducing antiepileptic drugs.					

P	Primal	lealth	PATIEN NAME: ACC #: DOB:	T INFORMATION JILLIAN DOE 1607190464 1/1/1753	SPECIMEN DETAILS COLLECTION DATE: RECEIVED DATE: REPORT DATE:	7/19/2016 7/19/2016 8/11/2016	ORDERED BY DOCTOR JONES 1^ABC CLINICAL LAB	
,	T - 11 ² - 11 - 11 - 12	Normal Door or a	SEX:	Female		., ,		
V	Topamax	Pharmacogenetic guidance: no genetically guided drug selection or dosing recommendations are available. Polypharmacy guidance: About 50% of absorbed topiramate dose appears unchanged in urine, and an additional 50% is present as metabolites and conjugates. Topiramate metabolism by cytochrome P450 enzymes is minor for its elimination when the drug is given as a monotherapy. However, this pathway is enhanced by concomitant use of enzyme-inducing antiepileptic drugs, and may result in reduced topiramate plasma concentrations. Thus, this drug should be titrated slowly, and dose adjustment must be considered in presence of inducers. Concomitant administration of valproic acid and topiramate has been associated with hyperammonemia with and without encephalopathy.						
\checkmark	Trazodone	Normal Response	e to Tra	zodone			INFORMATIVE	
-	Oleptro	Pharmacogenetic guidance: Trazodone is metabolized to its active metabolite m-chlorophenylpiperazine by CYP3A4. This metabolite which may contribute to adverse events, is further metabolized by CYP2D6. The impact of genetic polymorphisms of this enzyme on the clinical response to trazodone is not well documented. No genetically guided drug selection or dosing recommendations are available. Polypharmacy guidance : It is likely that CYP3A4 inhibitors may lead to substantial increases in trazodone plasma concentrations with the potential for adverse effects. If trazodone is used with a potent CYP3A4 inhibitor, the risk of cardiac arrhythmia may be increased. Therefore coadministration of trazodone with drugs that are inhibit CYP3A4 should be approached with caution.						
	Trifluoperazine	Normal Response to Trifluoperazine INFORMA						
	Stelazine	Pharmacogenetic guidance: Thrifluoperazine extensively metabolized by oxidation, sulfoxidation, hydroxylation and direct glucuronidation catalyzed by UGT1A4. No genetically guided drug selection or dosing recommendations are available. Polypharmacy guidance: It is likely that strong enzyme inducers may lead to substantial decreases in trifluoperazine plasma concentrations with the potential for reduced effectiveness.						
	Valproic Acid	Normal Response	e to Val	proic acid			INFORMATIVE	
-	Depakote, Depakene	Pharmacogenetic guidance: valproic acid is extensively metabolized in the liver, which occurs primarily by glucuronidation with probable contributions of UGT1A6, UGT1A9, and UGT2B7. This drug is also metabolized by a minor CYP–dependent oxidation pathway, which includes multiple enzymes such as CYP2A6, CYP2C9, and CYP2C19. There are insufficient studies documenting the impact of genetic polymorphisms of these metabolizing enzymes on valproic acid response, and no genetically guided drug selection or dosing recommendations are available. Polypharmacy guidance: enzyme-inducing drugs increase valproic acid clearance 2-fold, and higher doses of this drug are required to maintain therapeutic concentrations when added to a therapy regimen containing enzyme-inducing antiepileptic drugs.						
	Venlafaxine	Normal Sensitivit	ty to Ve	nlafaxine (CYP2D6: No	ormal Metabolizer)		ACTIONABLE	
	Effexor	Venlafaxine can be recommended until	prescribe a favora	ed at standard label-recor ble response is achieved.	nmended dosage and	d administratio	on. Careful titration is	
	Vigabatrin	Normal Response	e to Via	abatrin			INFORMATIVE	
V	Sabril	Pharmacogenetic Polypharmacy gui Therefore, genetic Vigabatrin can be p	guidance dance: V variations rescribec	e: no genetically guided c /igabatrin is eliminated pr s in these metabolizing en d at standard label-recom	lrug selection or dosi imarily through renal zymes are not expect mended dosage and	ng recommen excretion and ted to affect it administratior	dations are available. is not metabolized by CYPs. s efficacy or toxicity profiles. n.	

			PATIENT	INFORMATION	SPECIMEN DETAILS		ORDERED BY
	Prima	lealth	NAME: JILLIAN DOE		COLLECTION DATE:	7/19/2016	DOCTOR JONES
			ACC #: DOB: SEX:	1607190464 1/1/1753 Female	RECEIVED DATE: REPORT DATE:	7/19/2016 8/11/2016	1^ABC CLINICAL LAB
✓	Vilazodone Viibryd	Normal Response to Vilazodone INFORMATIVE Pharmacogenetic guidance: Vilazodone is predominantly metabolized by CYP3A4. CYP2C19, CYP2D6, and CYP2E1 play a minor role in the biotransformation of this drug. No genetically guided drug selection or dosing recommendations are available. Polypharmacy guidance: It is likely that CYP3A4 inhibitors may lead to substantial increases in vilazodone plasma concentrations with the potential for adverse effects. Vilazodone should be reduced to 20 mg if co-administered with a strong inhibitor of CYP3A4 (e.g., ketoconazole). During coadministration with moderate inhibitors of CYP3A4 (e.g., erythromycin), the dose should be reduced to 20 mg for patients with intolerable adverse events. The dose can be readjusted to the original level when the CYP3A4 inhibitor is discontinued. Consider increasing the dose of vilazodone up to 2-fold when concomitantly used with strong CYP3A4 inducers (e.g., carbamazepine). The maximum daily dose should not exceed 80 mg. If CYP3A4 inducers are discontinued, reduce vilazodone dose to the original level.					
\checkmark	Vortioxetine	Normal Sensitivity to Vortioxetine (CYP2D6: Normal Metabolizer) AC					
	Trintellix Vortioxetine can be prescribed at standard label-recommended dosage and administration. The recommended dose is 10 mg/day, which can then be increased to 20 mg/day, as tolerated.						tion. The recommended starting
	Ziprasidone	Normal Response	e to Zipra	asidone			INFORMATIVE
		Pharmacogenetic guidance: Ziprasidone is primarily cleared following extensive metabolism. CYP3A4 is the major CYP contributing to the oxidative metabolism of ziprasidone with minor involvement from CYP1A2. Less than one-third of ziprasidone metabolic clearance is mediated by cytochrome P450 catalyzed oxidation and approximately two-thirds via reduction involving glutathione as well as aldehyde oxidase. No genetically guided drug selection or dosing recommendations are available. Individualization of ziprasidone dose with careful weekly titration is required. Dosage adjustments should generally occur at intervals of no less than 2 days, as steady-state plasma concentrations are achieved within 1 to 3 days. In order to ensure use of the lowest effective dose, patients should ordinarily be observed for improvement for several weeks before upward dosage adjustment. When deciding among the alternative treatments available, the prescriber should consider the finding of ziprasidone's greater capacity to prolong the QT/QTc interva compared to several other antipsychotic drugs. Polypharmacy guidance: Although coadministration of strong CYP3A4 inhibitors are expected to result in modest increases in ziprasidone dose may need to be increased when used in combination with a chronic treatment of a potent CYP3A4 inducer (e.g., phenytoin, carbamazepine, rifampin, St. John's wort etc.).					
\checkmark	Zonisamide Zonegran	Normal Sensitivity to Zonisamide (CYP2C19: Ultra-Rapid Metabolizer) INFORI					
		CYP2C19 is partly involved in the metabolism of zonisamide, and this drug can be prescribed at standard label- recommended dosage and administration.					
× ^	A medication has potentially reduced efficacy, increased toxicity or the patient has an increased risk for the indicated condition. Guidelines exist for adjusting dosage, increased vig		eased jilance or	ACTIONABLE	Recommendations based upon publications by international pharmacogenetic expert groups, consortia or regulatory bo (CPIC, DPWG, FDA. EMA). Recommendations are suitable for implementation in a clinical setting. Guidelines may change knowledge arises.		lications by international nsortia or regulatory bodies ndations are suitable for Guidelines may change as
\checkmark	The medication can be prescribed according to stand regimens or the patient's risk for the indicated condi not increased.			INFORMATIVE There are insufficient or contradictory findings docum impact of a given genetic polymorphism or drug inte Recommendations are informative and implementation setting is optional.			ry findings documenting the nism or drug interaction. nd implementation in a clinical



PATIENT INFORMATION

 NAME:
 JILLIAN DOE

 ACC #:
 1607190464

 DOB:
 1/1/1753

 SEX:
 Female

SPECIMEN DETAILS

RECEIVED DATE:

REPORT DATE:

COLLECTION DATE: 7/19/2016

7/19/2016

8/11/2016

ORDERED BY

DOCTOR JONES

1^ABC CLINICAL LAB

Test Details

Gene	Genotype	Phenotype	Alleles Tested
ANKK1/DRD2	DRD2:Taq1A AG	Altered DRD2 function	DRD2:Taq1A
COMT	Val158Met AG	Intermediate COMT Activity	Val158Met
CYP1A2	*1A/*1V	Normal Metabolizer- Possible Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP2C19	*17/*17	Ultra-Rapid Metabolizer	*2, *3, *4, *4B, *6, *7, *8, *9, *10, *17
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2D6	*1/*35	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
СҮРЗА4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
СҮРЗА5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3C, *6, *7, *8, *9
OPRM1	A118G AA	Normal OPRM1 Function	A118G
SLCO1B1	521T>C TC	Decreased Function	521T>C, 388A>G
VKORC1	-1639G>A G/A	Intermediate Warfarin Sensitivity	-1639G>A

Disclaimer: Only a physician, pharmacist or other healthcare professional should advise a patient on the use of information in this report.

Methodology: All single nucleotide polymorphisms tested in duplicate by PCR-reporter probe technology. Copy number variation tested in quadruplicate with PCR-reporter probe technology.

Limitations: This test will not detect all the known mutations that result in altered or inactive tested genes. Absence of a detectable gene mutation or polymorphism does not rule out the possibility that a patient has intermediate or high sensitivity phenotypes due to the presence of an undetected polymorphism or due to drug-drug interactions.

