

CA-ADAP FORMULARY REVIEW: Sexual Health and Erectile Dysfunction

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**Sexual health can
affect and be
affected by other
aspects of health**

- ▶ A state of well-being that's important for individuals, couples, families, and communities
- ▶ Involves physical, emotional, mental, social, and spiritual dimensions
- ▶ Relevant throughout a person's life, and can be expressed in various ways
- ▶ Key elements include respect, safety, understanding, and freedom

Achieving sexual health and well-being depends on several factors

- ▶ Access to comprehensive, good-quality info
- ▶ Knowledge about risks and vulnerability from unprotected sex
- ▶ Ability to access sexual healthcare
- ▶ An environment that affirms sexual health

**Issues are wide-
ranging**

- ▶ Encompass sexual orientation and gender identity, sexual expression, relationships, and pleasure
- ▶ Negative consequences or conditions include:
 - HIV, STIs and RTIs, and their adverse outcomes
 - Unintended pregnancies and/or abortions
 - Sexual dysfunction
 - Sexual violence
 - Harmful practices (such as female genital mutilation)

Erectile Dysfunction (ED)

Occasional problems are not necessarily cause for concern, but ongoing ED should be evaluated

- ▶ The inability to get or cannot keep an erection
- ▶ Most men are sometimes unable to have an erection

**Erectile
Dysfunction (ED)
is more common
in men with HIV
than in men
without HIV**

- ▶ Often associated with older age, DM, high cholesterol, high BP, smoking, obesity, and heart disease
- ▶ There may be other factors important to men with HIV:
 - Living w/HIV for longer time
 - Lower CD4 count than original diagnosis
 - HIV + Hep C
 - Hypogonadism
 - Lipodystrophy
 - Potentially certain HIV medications (PIs w/ritonavir)

**Psychological
causes can be as
impactful to ED
as physical
causes**

- ▶ Sexual performance can be affected by:
 - Depression
 - Stress
 - Relationship problems
- ▶ In men living with HIV:
 - Embarrassment of HIV diagnosis
 - Guilt
 - Stigma of HIV
 - Anxiety about passing HIV

ED Treatment - Alprostadil

- Prostaglandin E1 agonist (smooth muscle relaxant)
- Binds to specific receptors in human penile tissue, causing smooth muscle relaxation and dilation of cavernosal arteries; this results in increased inflow velocity and increased outflow resistance and inducing an erection

Agent	Generic Available	# Unique Cardholder Denials (01/01/2023 – 05/31/2024)	Indication	Notes	AZ	CT	FL	GA	IL	NY	TX
Caverject	N	Requests are rare	<ul style="list-style-type: none">• For ED due to vasculogenic, psychogenic, or mixed causes• For ED due to neurogenic origin	Injected into corpus cavernosa	-	-	-	-	-	-	-
Edex	N				-	-	-	-	-	-	-

ED Treatment – PDE-5 Inhibitors

- Inhibit the PDE5 enzyme found in smooth muscle of the corpus cavernosum, and prevents cGMP degradation; increased cGMP leads to smooth muscle relaxation, allowing blood to fill the corpus cavernosum, causing an erection

Agents	Generic Available	# Unique Cardholder Denials (01/01/2023 – 05/31/2024)	Notes	AZ	CT	FL	GA	IL	NY	TX
Avanafil (Stendra)	N	0.1%	<ul style="list-style-type: none"> 50 mg, 100 mg, 200 mg tabs 	-	-	-	-	-	-	-
Sildenafil (Viagra)	Y	43.8%	<ul style="list-style-type: none"> 25 mg, 50 mg, 100 mg tabs 	-	-	Y	-	PAH only	-	-
Tadalafil (Cialis)	Y	54.2%	<ul style="list-style-type: none"> 2.5 mg, 5 mg, 10 mg, 20 mg tabs 	-	Y 5mg only (BPH)	Y	-	PAH only	-	-
Vardenafil (Levitra, Staxyn)	Y	1.9%	<ul style="list-style-type: none"> 2.5 mg, 5 mg, 10 mg, 10 mg ODT, 20 mg tabs Fastest onset of action (<10min) 	-	-	Y Levitra	-	-	-	-

PDE-5 Inhibitor Selectivity

Agent	Selectivity for PDE5 vs PDE6	Selectivity for PDE5 vs PDE3	Key Points	Incidence of Visual and Cardiovascular Adverse Events
Avanafil (Stendra)	~100-fold	~19,000-fold	<ul style="list-style-type: none"> HIGH selectivity for PDE5 over both PDE6 and PDE3 	<ul style="list-style-type: none"> Visual: 2% Cardiovascular: 1%
Sildenafil (Viagra)	~10-fold	~4,000-fold	<ul style="list-style-type: none"> MODERATE selectivity for PDE5 over PDE6 HIGH selectivity for PDE5 over PDE3 	<ul style="list-style-type: none"> Visual: 10% Cardiovascular: 2%
Tadalafil (Cialis)	~700-fold	~10,000-fold	<ul style="list-style-type: none"> HIGH selectivity for PDE5 over both PDE6 and PDE3 	<ul style="list-style-type: none"> Visual: 1% Cardiovascular: 1%
Vardenafil (Levitra, Staxyn)	~15-fold	~1,300-fold	<ul style="list-style-type: none"> MODERATE selectivity for PDE5 over PDE6 HIGH selectivity for PDE5 over PDE3 	<ul style="list-style-type: none"> Visual: 2% Cardiovascular: 2%

PDE-5 Inhibitor ARV Interactions - NNRTIs

Agent		Avanafil (Stendra)	Sildenafil (Viagra)	Tadalafil (Cialis)	Vardenafil (Levitra, Staxyn)
Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs)	<i>Sustiva (efavirenz)</i>	May decrease serum concentrations of Avanafil	May decrease serum concentrations of Sildenafil	May decrease serum concentrations of Tadalafil	May increase risk of QT prolong w/Vardenafil
	<i>Intelligence (etravirine)</i>	May decrease serum concentrations of Avanafil	May decrease serum concentrations of Sildenafil	May decrease serum concentrations of Tadalafil	None
	<i>Viramune (nevirapine)</i>	May decrease serum concentrations of Avanafil	May decrease serum concentrations of Sildenafil	May decrease serum concentrations of Tadalafil	None
	<i>Edurant (rilpivirine)</i>	None	None	None	May increase risk of QT prolong w/Vardenafil
	<i>Pifeltro (doravirine)</i>	None	None	None	None

	Level 3 (Moderate) Interaction
	Level 2 (Major) Interaction

PDE-5 Inhibitor ARV Interactions – Protease Inhibitors

Agent		Avanafil (Stendra)	Sildenafil (Viagra)	Tadalafil (Cialis)	Vardenafil (Levitra, Staxyn)
Protease Inhibitors (PIs)	Aptivus (tipranavir) Viracept (nelfinavir)	May increase serum concentrations of Avanafil	May increase serum concentrations of Sildenafil	May increase serum concentrations of Tadalafil	May increase ADRs of Vardenafil
	Evotaz (atazanavir/cobicistat) Reyataz (atazanavir) Prezcobix (darunavir/cobicistat) Prezista (darunavir)	Atazanavir, Darunavir, and Cobicistat may increase serum concentrations of Avanafil	Atazanavir, Darunavir and Cobicistat may increase serum concentrations of Sildenafil	Atazanavir and Darunavir may increase serum concentrations of Tadalafil; Cobicistat may increase ADRs of Tadalafil	Atazanavir, Darunavir, and Cobicistat may increase ADRs of Vardenafil
	Kaletra (lopinavir/ritonavir); Norvir (ritonavir)	Ritonavir may increase serum concentrations of Avanafil	Ritonavir may increase serum concentrations of Sildenafil	Ritonavir may increase serum concentrations of Tadalafil	Ritonavir may increase ADRs of Vardenafil; Lopinavir may increase risk of QT prolong w/Vardenafil
	Lexiva (fosamprenavir)	May increase ADRs of Avanafil	May increase ADRs of Sildenafil	May increase ADRs of Tadalafil	May increase ADRs of Vardenafil

	Level 3 (Moderate) Interaction
	Level 2 (Major) Interaction

PDE-5 Inhibitor ARV Interactions - Other

Agent		Avanafil (Stendra)	Sildenafil (Viagra)	Tadalafil (Cialis)	Vardenafil (Levitra, Staxyn)
Boosting Agents <i>Tybost (cobicistat)</i>		May increase serum concentrations of Avanafil	May increase serum concentrations of Sildenafil	May increase ADRs of Tadalafil	May increase ADRs of Vardenafil
INSTI-Based Therapy	Genvoya, Stribild	<i>Cobicistat interaction</i>	<i>Cobicistat interaction</i>	<i>Cobicistat interaction</i>	<i>Cobicistat interaction</i>
	<i>Biktarvy, Dovato, Isentress, Tivicay, Triumeq</i>	None	None	None	None
	<i>Cabenuva, Juluca</i>	None	None	None	Rilpivirine may increase risk of QT prolong w/Vardenafil
GP120 Attachment Inhibitors <i>Rukobia (fostemsavir)</i>		None	None	None	May increase risk of QT prolongation w/Vardenafil

	Level 3 (Moderate) Interaction
	Level 2 (Major) Interaction

PDE-5 Inhibitor ARV Interactions – Other cont'd

Agent	Avanafil (Stendra)	Sildenafil (Viagra)	Tadalafil (Cialis)	Vardenafil (Levitra, Staxyn)
CCR5 Co-Receptor Antagonists <i>Selzentry (maraviroc)</i>	None	None	None	None
CD4 Post-Attachment Inhibitors <i>Trogarzo (ibalizumab)</i>	None	None	None	None
Fusion Inhibitors <i>Fuzeon (enfuvirtide)</i>	None	None	None	None
Nucleoside Reverse Transcriptase Inhibitors (NRTIs) <i>Combivir, Descovy, Emtriva, Epivir, Epzicom, Retrovir, Truvada, Vemlidy, Videx, Viread, Ziagen</i>	None	None	None	None
INSTI-Based Therapy <i>Biktarvy, Dovato, Isentress, Tivicay, Triumeq</i>	None	None	None	None

	Level 3 (Moderate) Interaction
	Level 2 (Major) Interaction

Formulary Recommendation: ED Treatment

ALPROSTADIL
(Caverject, Edex)

Do not recommend addition to CA-ADAP formulary at this time

PHOSPHODIESTERASE 5 INHIBITORS
(Avanafil, Sildenafil, Tadalafil, Vardenafil)

Consider addition to CA-ADAP formulary

References

Erectile dysfunction (2022) *Mayo Clinic*. Available at: <https://www.mayoclinic.org/diseases-conditions/erectile-dysfunction/symptoms-causes/syc-20355776#:~:text=It's%20been%20reported%20that%20more,that%20you%20are%20not%20alone> (Accessed: 01 July 2024).

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