



Implementing RN-Led PrEP

Shanna Dell, MPH, RN, ACRN
Senior Clinic Nurse for HIV Prevention
Protocol Specialist, JHU Prevention Training Center
Johns Hopkins University
School of Medicine
Division of Infectious Diseases

Objectives:

- Review evidence for HIV PrEP
- Review evidence for RN-led clinic models including PrEP
- Outline an RN-led PrEP model and steps to implementation



Oral, Injectable, and Rapid- Start PrEP

History of HIV PrEP in the US

- TDF/FTC *tenofovir disoproxil fumarate + emtricitabine* (Truvada) approved by the FDA for PrEP in **2012**
- TAF/FTC *tenofovir alafenamide + emtricitabine* (Descovy) approved by the FDA for PrEP in **2019** (excluding those whose risk involves receptive vaginal sex)
- USPSTF grade A recommendation in **2019**
- Federal Government issues FAQ requiring insurers to cover PrEP without cost-sharing in July **2021**
 - <https://www.dol.gov/sites/dolgov/files/EBSA/about-ebsa/our-activities/resource-center/faqs/aca-part-47.pdf>
- Injectable cabotegravir (Apretude) approved for PrEP in December **2021**

Recommendation Summary		
Population	Recommendation	Grade (What's This?)
Persons at high risk of HIV acquisition	The USPSTF recommends that clinicians offer preexposure prophylaxis (PrEP) with effective antiretroviral therapy to persons who are at high risk of HIV acquisition.	A



HIV Lifecycle & Major Classes of HIV Medications

NRTI (oral)

Nucleoside reverse transcriptase inhibitor

NNRTI

Non-nucleoside reverse transcriptase inhibitor

PI

Protease inhibitor

INSTI (injectable)

Integrase inhibitor

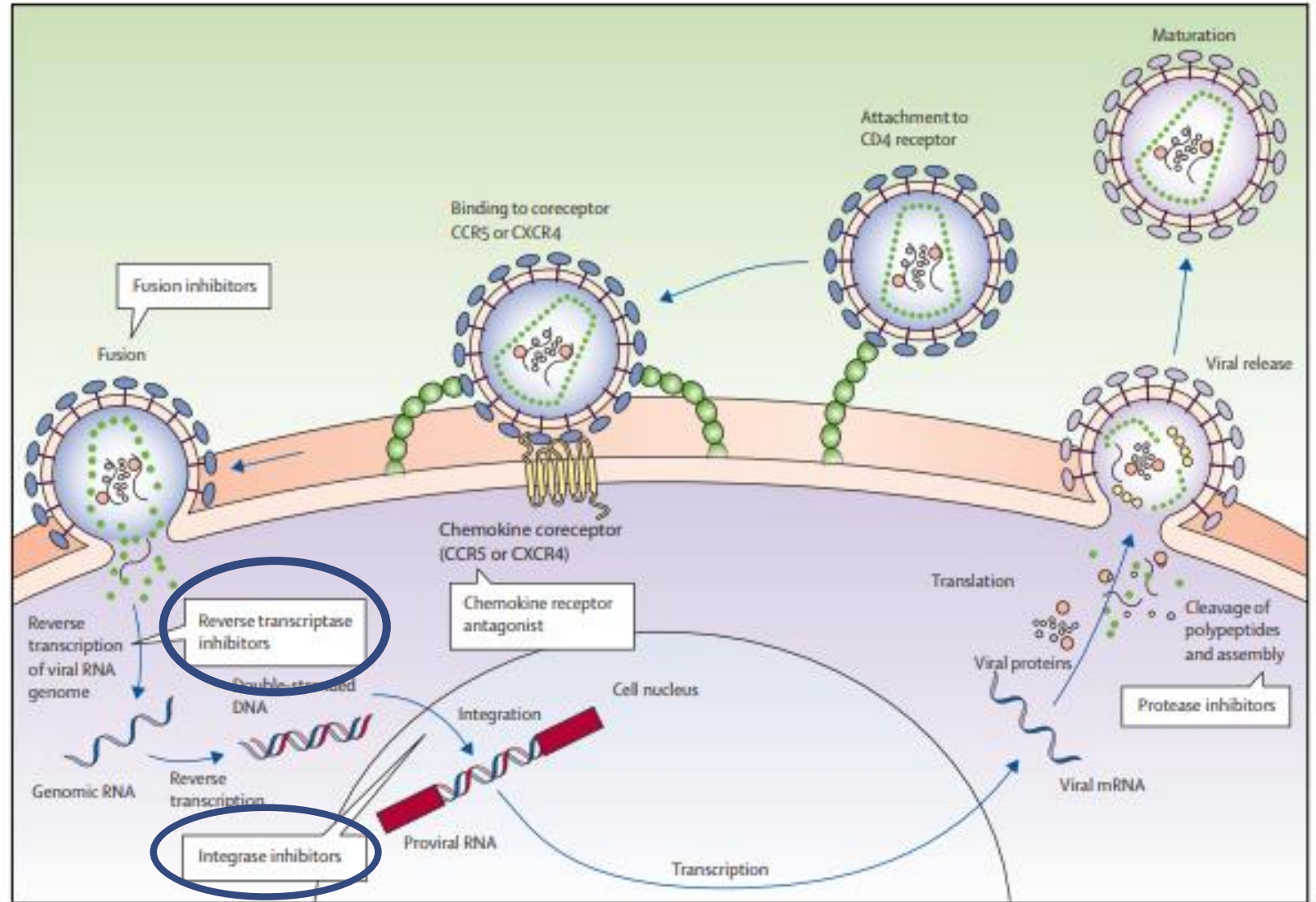
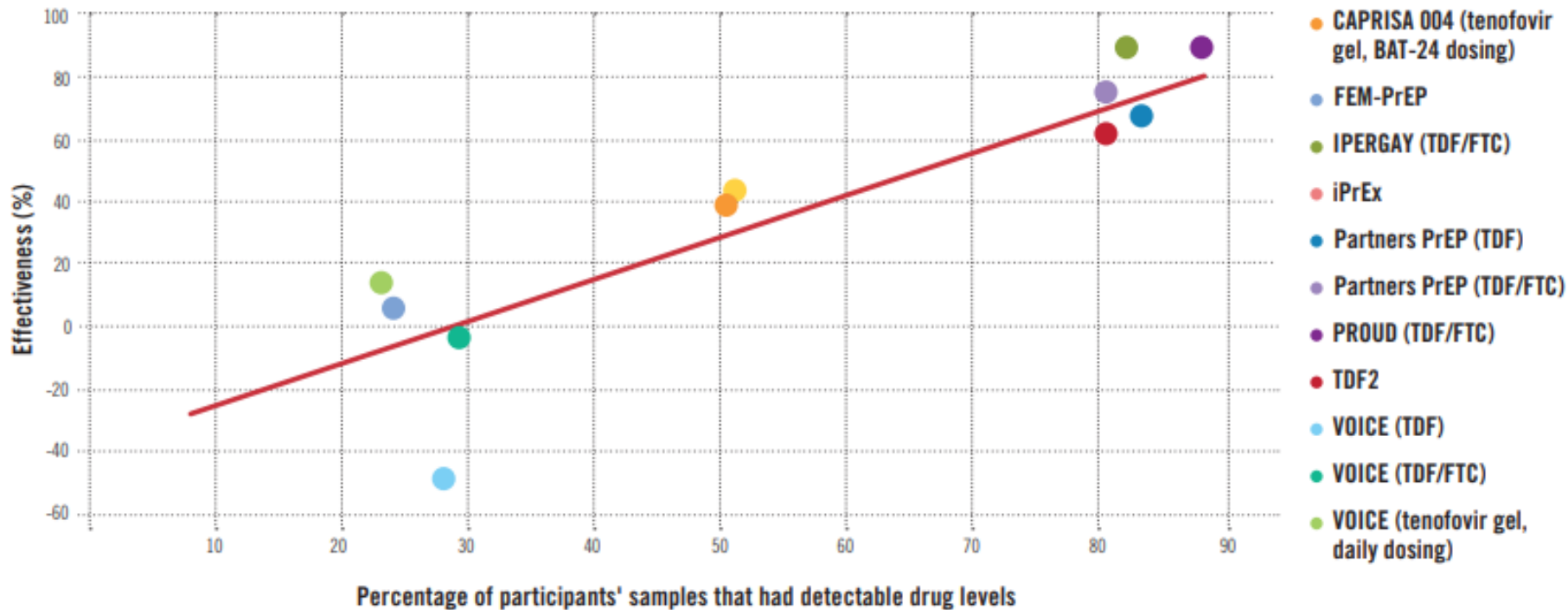


Figure 2: HIV life cycle showing the sites of action of different classes of antiretroviral drugs. Adapted from Walker and colleagues,³⁶ by permission of Elsevier.

Oral PrEP Works...If You Take It

PrEP Works if You Take It — Effectiveness and Adherence in Trials of Oral and Topical Tenofovir-Based Prevention



MSM and TGW ONLY

According to [data analysis from the iPrEx study](#) that found PrEP to be effective:

- For people who take 7 PrEP pills per week, their estimated level of protection is 99%.
- For people who take 4 PrEP pills per week, their estimated level of protection is 96%.
- For people who take 2 PrEP pills per week, their estimated level of protection is 76%.



February 2016

<https://www.avac.org>



How Well Does Oral PrEP Work For People Assigned Female At Birth?

- Meta-analysis of 5 RCTs of oral PrEP among women
 - 3 reported evidence of effectiveness and 2 did not
 - Estimates by adherence (based on plasma drug levels)
 - **25%** adherence: **no protection** (RR 1.19 95% CI: 0.89 – 1.61)
 - **50%** adherence: **32% protective** (RR 0.68 95% CI: 0.53 – 0.88)
 - **75%** adherence: **61% protective** (RR 0.39 95% CI: 0.25 – 0.60)

Hanscom B, Janes H, Guarino P. JAIDS 2016; 73(5):606-608



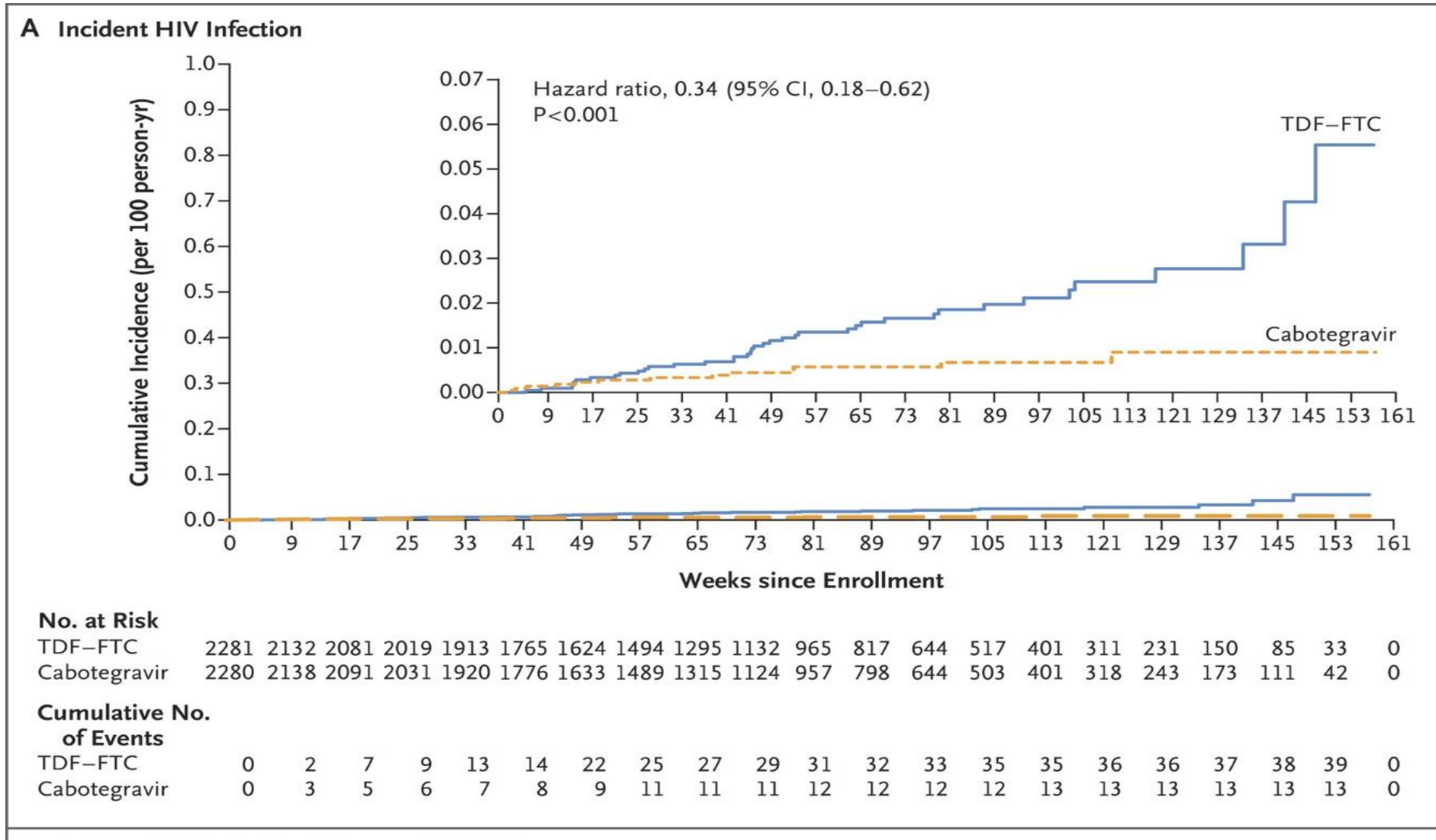
Injectable PrEP (CAB-LA): HPTN 083 Trial (Cis Men and TGW)¹

- RCT of CAB-LA vs Oral TDF/FTC in cis men and TGW over 18
- Study population was from USA, Latin America, Asia, and Africa
- N=4566
 - 2282 on CAB-LA
 - 2282 on TDF/FTC
- Outperformed oral PrEP in all populations
 - Overall risk of HIV infection 66% lower in CAB-LA group than TDF-FTC group
 - 4 incident infections observed despite on-time injections
 - Diagnosis delayed due to testing approach
 - Study ended early due to positive results
- Very safe
 - Most participants report injection site reaction
 - 2.4% chose not to continue as result¹
 - Weight difference?
 - Previous studies have shown weight gain with INSTIs
 - No difference or approx. 1kg weight loss in TDF=FTC group

¹Landovitz et al. (2021). Cabotegravir for HIV prevention in cisgender men and transgender women. *The New England Journal of Medicine*, doi: 10.1056/NEJMoa2101016



Injectable PrEP (CAB-LA): HPTN 083 Trial¹ (Cis Men and TGW)



¹Landovitz et al. (2021). Cabotegravir for HIV prevention in cisgender men and transgender women. *The New England Journal of Medicine*, doi: 10.1056/NEJMoa2101016

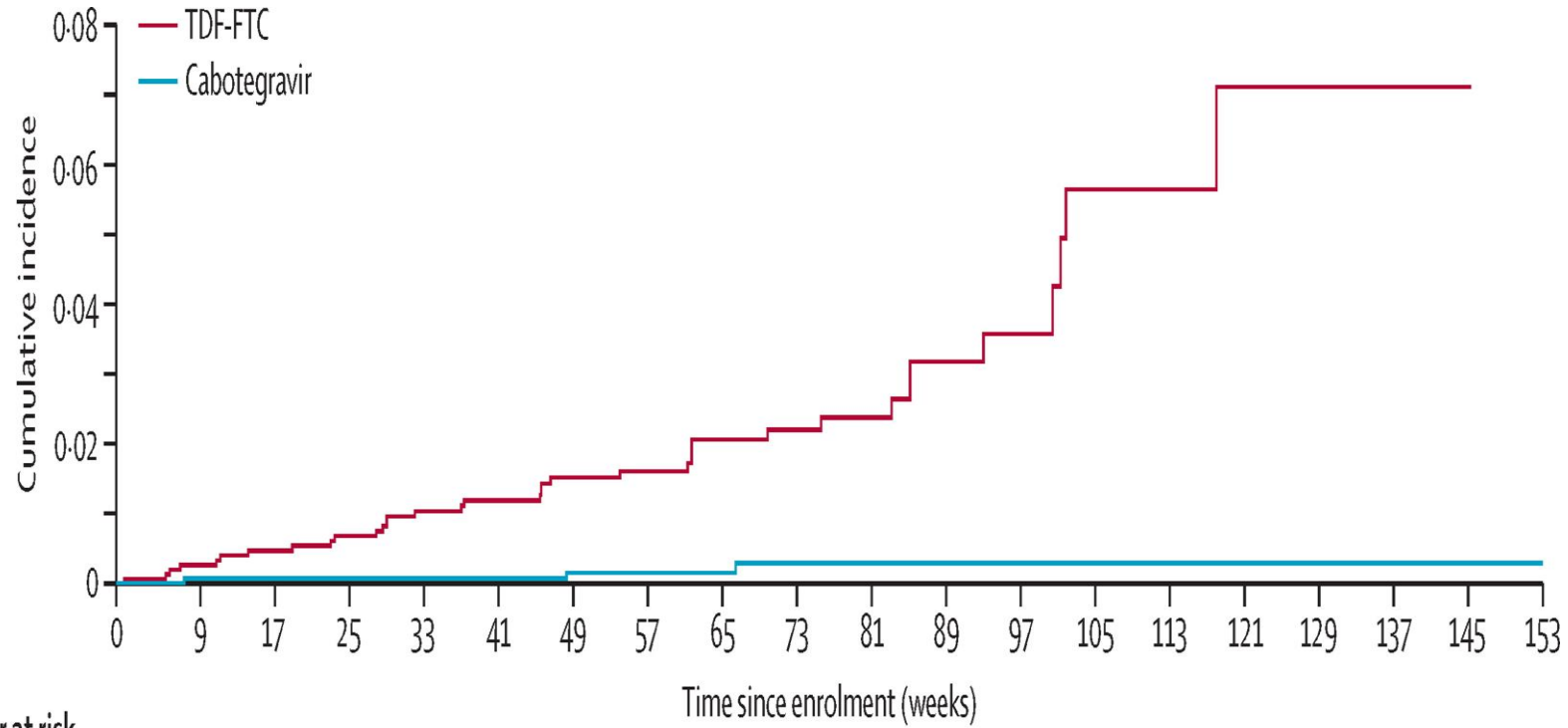


Injectable PrEP (CAB-LA): HPTN 084 Trial (cis women)¹

- RCT of CAB-LA vs Oral TDF/FTC in cis women 18-45 y/o
- Study population was from 20 clinical sites in 7 countries in Africa
- N=3224
 - 1614 on CAB-LA
 - 1610 on TDF/FTC
- Injection at week 0, week 4, then every 2 months
- Outperformed oral PrEP in all populations
 - Overall risk of HIV infection 88% lower in CAB-LA group than TDF-FTC group
 - 4 incident infections observed despite on-time injections
 - Diagnosis delayed due to testing approach
- Very safe
 - 1/3 participants report injection site reaction
 - 0 chose not to continue as result¹
 - Weight difference?
 - Previous studies have shown weight gain with INSTIs
 - No difference observed in this study
 - 49 pregnancies during study, 29 in CAB-LA group (all women on LA contraception)
 - No neural tube defects or other congenital anomalies

¹Delany-Moretlwe, S. et al. (2022). Cabotegravir for the prevention of HIV-1 in women: results from HPTN 084, phase 3, randomized clinical trial. *The Lancet*, 300(10337)

Injectable PrEP (CAB-LA): HPTN 084 Trial (cis women)¹

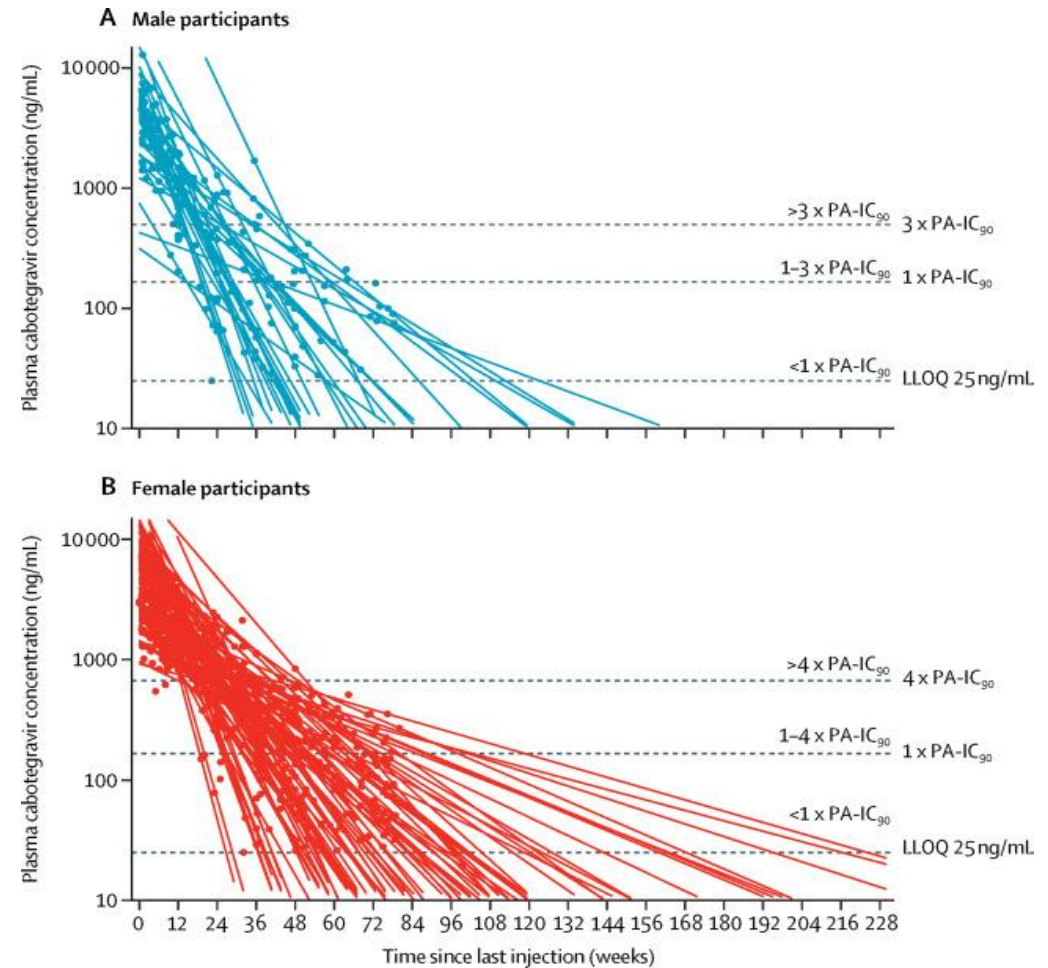


	Time since enrolment (weeks)																			
Number at risk	0	9	17	25	33	41	49	57	65	73	81	89	97	105	113	121	129	137	145	153
TDF-FTC	1610	1490	1429	1410	1353	1260	1160	984	800	656	485	306	201	115	70	63	52	22	3	0
Cabotegravir	1614	1488	1441	1429	1371	1279	1181	988	801	647	482	304	204	116	67	58	50	23	3	2
Cumulative number of events																				
TDF-FTC	0	4	7	10	15	17	21	22	26	27	28	31	32	35	35	36	36	36	36	36
Cabotegravir	0	1	1	1	2	2	3	3	3	4	4	4	4	4	4	4	4	4	4	4



Injectable PrEP (CAB-LA): Tail

- Median time from last injection of CAB-LA below the lowest level of quantification¹:
 - Males: 43.7 weeks
 - Females: 67.3 weeks
- INSTI resistance during tail if acquire HIV?
 - There is a concern
 - In animal models, no resistance developed during tail phase
 - HPTN 083 found no INSTI resistance in HIV acquired during tail, but limited data²



¹Safety, tolerability, and pharmacokinetics of long-acting injectable cabotegravir in low-risk HIV-uninfected individuals: HPTN 077, a phase 2a randomized controlled trial. *PLoS Med.* 2018; 15:e1002690

²Landovitz et al. (2021). Cabotegravir for HIV prevention in cisgender men and transgender women. *The New England Journal of Medicine*, doi: 10.1056/NEJMoa2101016

Rapid / Same-day / Immediate PrEP

- Start PrEP while awaiting baseline lab results if clinical criteria are met
 - MUST have a rapid HIV – test and have other baseline labs in process
 - No known HBV or kidney disease
- Reduce unnecessary barriers to PrEP initiation
- Engage patients more fully in care and reduce risk of HIV acquisition while awaiting test results
- Main concerns:
 - Medical contraindications indicated in labs
 - Starting a non-suppressive HIV regimen on someone who has HIV

Rapid PrEP Evidence

- **PROUD Trial** (McCormack et al. (2016) Lancet 387:53-60)
 - 13 STI Clinics in the UK 2012-2014
 - RCT immediate vs. delayed start
 - 86% reduction in HIV incidence in immediate group compared to delayed group
- **NYC STI Clinics** (Mikati T, Jamison K, Daskalakis DC. CROI abstract, March 2019)
 - **Participants:**
 - Cis gender men and women >18
 - 1437 were evaluated
 - 1387 qualified for immediate PrEP (96.5%)
 - Of those with no contraindications but who delayed PrEP initiation, only **35% initiated PrEP within 60 days**, significantly lower compared to rapid PrEP
 - Very few immediate PrEP patients needed to discontinue due to medical contraindications
 - 4 participants d/c due to lab contraindications (0.2%)
- **Denver STI Clinic** (Kamis KF, et al. Open Forum Infectious Diseases. June 2019)
 - N=100
 - **Results:**
 - 78% attended at least one follow-up visit
 - 57% attended at least 2 f/u visits
 - No HIV seroconversion during 6-month follow up period
 - Higher income significantly associated with attending follow-up appointments

Summary:
**Same-day
PrEP is
acceptable,
feasible and
safe**



Rapid PrEP and Acute HIV and Drug Resistance

Kelly et al (2021), JAIDS, 87:2, p818-825

- PrEP and PEP users who started 2-drug regimens during acute HIV infection, followed for 2 years
- Of 1,758 same-day PrEP starts there were 7 AHI cases identified
- Of the 13 total AHI (PrEP/PEP users combined)
 - 100% were linked to HIV care, median time 1 week
 - >90% received ART Rx, median time 2 weeks
 - ~85% VL suppression within median of 2 months
- 3 developed M184V within just 7-12 days of exposure to the 2-drug regimen
 - All 3 were linked to care, achieved viral suppression and remain virally suppressed



CDC 2021 Guidelines

<https://www.cdc.gov/hiv/pdf/risk/prep/cdc-hiv-prep-guidelines-2021.pdf>

To use a same-day PrEP initiation protocol, the clinic must be able to:

- Conduct point-of-care HIV testing, ideally with an antigen/antibody fingerstick or other blood test
 - Where same-day results can be obtained, laboratory-based antigen/antibody test or an HIV-1 RNA test can be used (and is preferred)
 - Oral fluid HIV testing should not be used in the context of PrEP initiation
- Draw blood for laboratory creatinine and HIV testing when same day HIV and creatinine test results are not available
- Provide assistance for eligible patients to enroll in health insurance, medication co-payment assistance, or medication assistance programs for those who are uninsured or underinsured
- Provide rapid follow-up contact for patients whose laboratory test results indicate HIV infection or renal dysfunction
- Provide scheduled follow-up care appointments
- Have clinicians available to dispense or prescribe oral PrEP medication, to administer a gluteal intramuscular injection of CAB, or optionally prescribe a daily oral CAB lead-in for 4 weeks.



Evidence for RN-Led Care

Nursing scope of practice

- Per ANA:
 - Nursing is the protection, promotion, and optimization of health and abilities; prevention of illness and injury; facilitation of healing; alleviation of suffering through the diagnosis and treatment of human response; and advocacy in the care of individuals, families, groups, communities, and populations.
- Specifics vary by state
- Standing order rules vary by state
 - Who can delegate tasks
 - What tasks can be delegated
- RNs CAN: perform assessments, implement plans based on assessments, provide education, administer medications
- RNs CAN'T: diagnose, prescribe medications under their own NPI

So...what CAN RNs do on standing orders?

Anything that does not require complex diagnostic skills



General Evidence for RN Lead Care

- Lots of literature demonstrating effective RN led care across multiple disciplines:
 - Cardiovascular disease¹
 - Favorable effects on mortality, major adverse cardiac events, and medication adherence
 - Cancer ²
 - Improved distress levels, satisfaction, quality of life, depression, other symptoms
 - Diabetes ³
 - Improvements in HgA1C, cholesterol reduction, patient satisfaction, confidence in ability to self-manage diabetes
 - Many more (asthma, mental health, eczema, etc.)
- A systematic review ⁴ of 15 nurse- led clinic studies showed:
 - Positive impact on patient outcomes
 - Increased patient satisfaction
 - Increased access to care

¹Mouza et al. (2016). The impact of nurse-led clinics on mortality and morbidity of patients with cardiovascular diseases a systemic review and meta analysis. *The Journal of Cardiovascular Nursing*, 31(1): 89-95

²Molassiotis et al. (2020). Impact of advanced nursing practice through nurse-led clinics in the care of cancer patients: a scoping review. *European Journal of Cancer Care*, 30(e13358)

³Hicks et al. (2011). Audit of the effectiveness of nurse consultant led intermediate diabetes care services in England. *Practical Diabetes*, 29(3).

⁴Randall et al. (2017). Impact of community based nurse-led clinic on patient outcomes, patient satisfaction, patient access, and cost effectiveness: a systematic review. *International Journal of Nursing Studies*, 73: 24-33



Evidence for RN-Led HIV Care

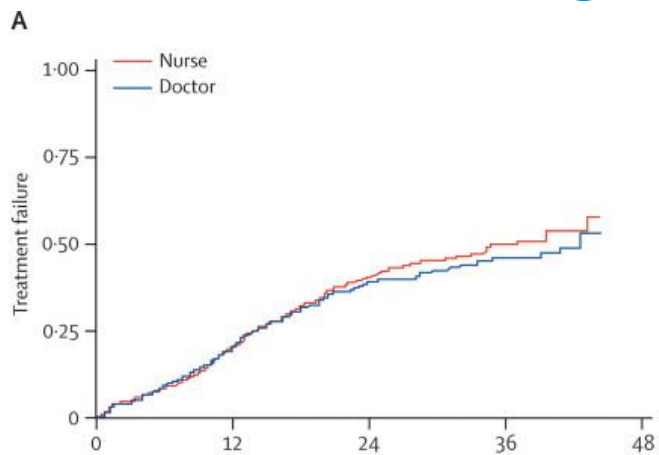
- RN-led HIV care models:
 - RN monitored ART in South Africa similar outcomes to MD monitored ART (next slide) ¹
 - Systematic review of 23 journal articles found nurse-led models had positive effects on ART adherence and viral outcomes. ²

¹ Sanne et al. (2010). Nurses versus doctor management of HIV-infected patients receiving antiretroviral therapy (CIPRA-SA): a randomized noninferiority trial. *The Lancet*, 376(9734)

² Lambert et al. (2021). A systematic review of nurse-led antiretroviral medication adherence intervention trials: how nurses have advanced the science. *The Journal of the Association of Nurses in AIDS Care*, 32(3)

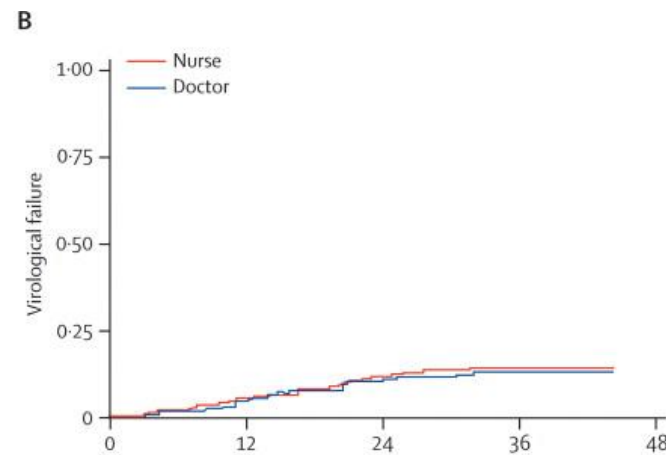


Sanne et al- Nurse vs MD Management of Patients with HIV Over Time



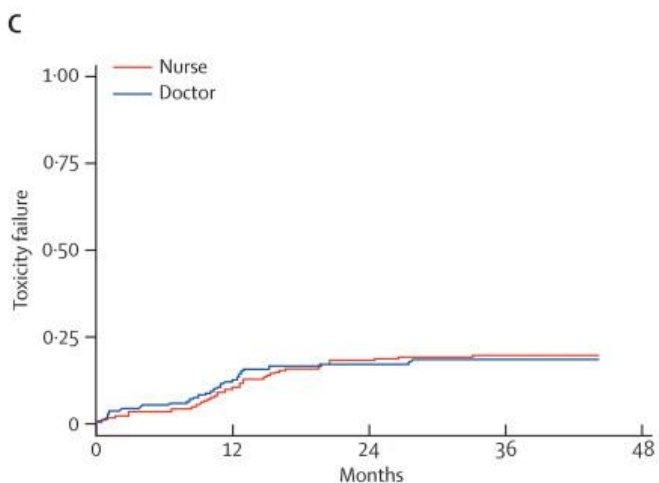
Number at risk (events)

Nurse	404	(83)	319	(78)	234	(27)	61	(4)	0
Doctor	408	(82)	324	(75)	241	(19)	65	(3)	0



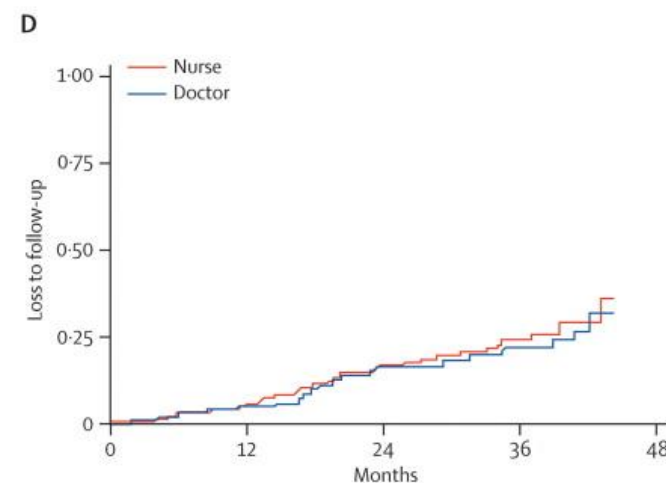
Number at risk (events)

Nurse	404	(20)	319	(19)	234	(5)	61	(0)	0
Doctor	408	(15)	324	(18)	241	(6)	65	(0)	0



Number at risk (events)

Nurse	404	(38)	319	(26)	234	(4)	61	(0)	0
Doctor	408	(44)	324	(18)	241	(4)	65	(0)	0



Number at risk (events)

Nurse	404	(19)	319	(32)	234	(15)	61	(4)	0
Doctor	408	(14)	324	(37)	241	(9)	65	(3)	0

Sanne et al. (2010). Nurses versus doctor management of HIV-infected patients receiving antiretroviral therapy (CIPRA-SA): a randomized noninferiority trial. *The Lancet*, 376(9734)



Evidence for RN-Led PrEP

- RN-led PrEP care models:
 - Canadian clinic has published many articles:
 - O’Byrne et al.³ prospective cohort study on a nurse-led PrEP model showed care adhered to clinical guidelines and no severe side effects were experienced
 - Dean St. Clinic in UK⁴ :
 - PrEPxpress- After initiating Nurse model, able to enroll 1700 people in 4 months

³ O’Byrne, P., Vandyk, A., Orser, L., & Haines, M. (2021). Nurse-led PrEP-RN clinic: a prospective cohort study exploring task-shifting HIV prevention to public health nurses. *BMJ Open*, 11(1).

⁴ Girometti et al. (2018). Evolution of a pre-exposure prophylaxis (PrEP) service in a community-located sexual health clinic: concise report of the PrEPxpress. *Sexual Health*, 15.



Implementing an RN-Led PrEP Model

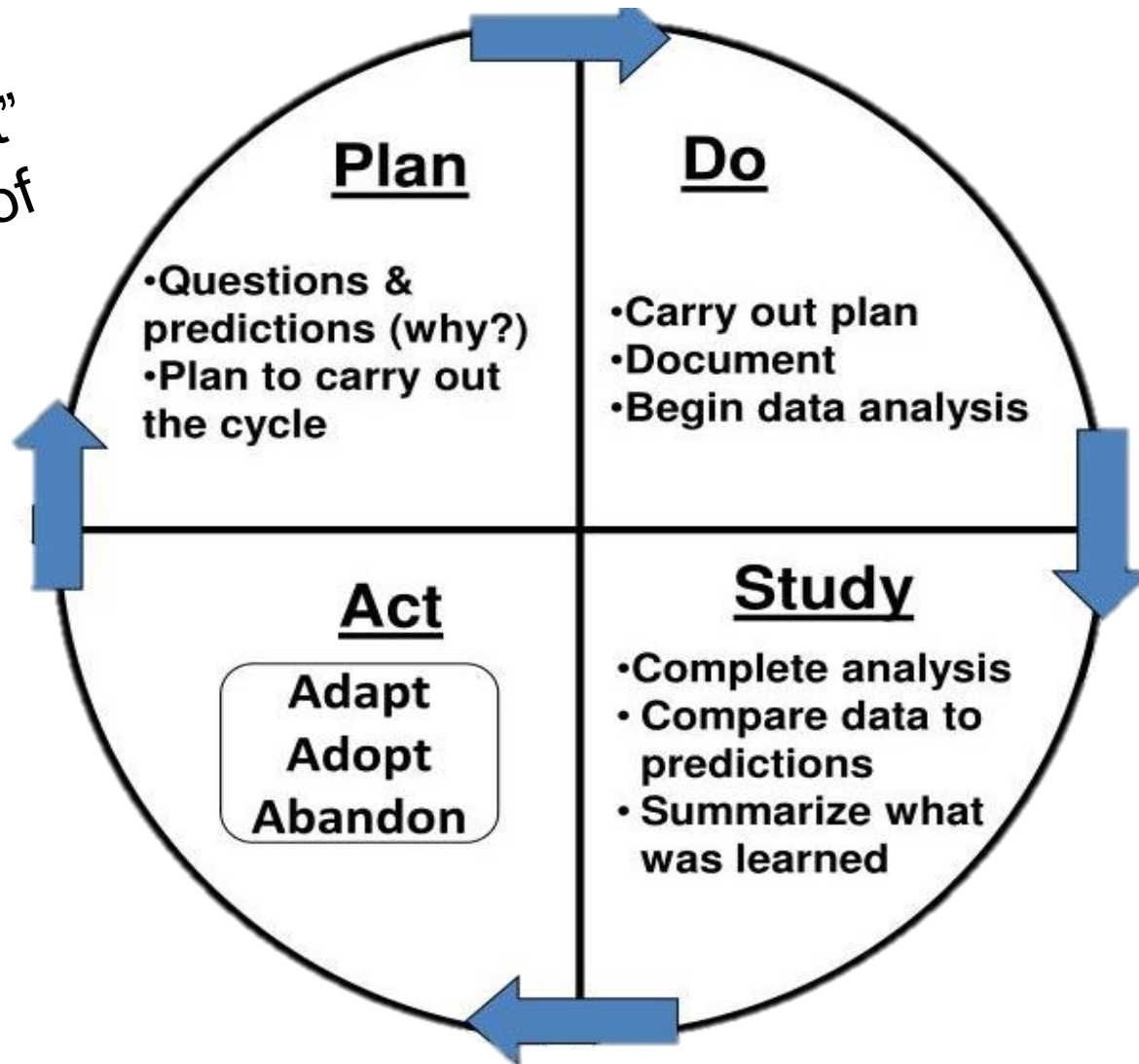
Sample Steps to implementing RN-Led PrEP

- Identify need for change/ intended impact
 - example: increase number of patients initiating PrEP
- Background research
- Establishment
 - Obtain buy-in from stakeholders
 - Plan for implementation
 - Timeline
 - Develop initial protocols/standing orders
 - Delineate roles
 - Identify measures/indicators
- Pilot
- Evaluation
- Standardization, Expansion, and scale-up
- Evaluation
- Maintenance and QI

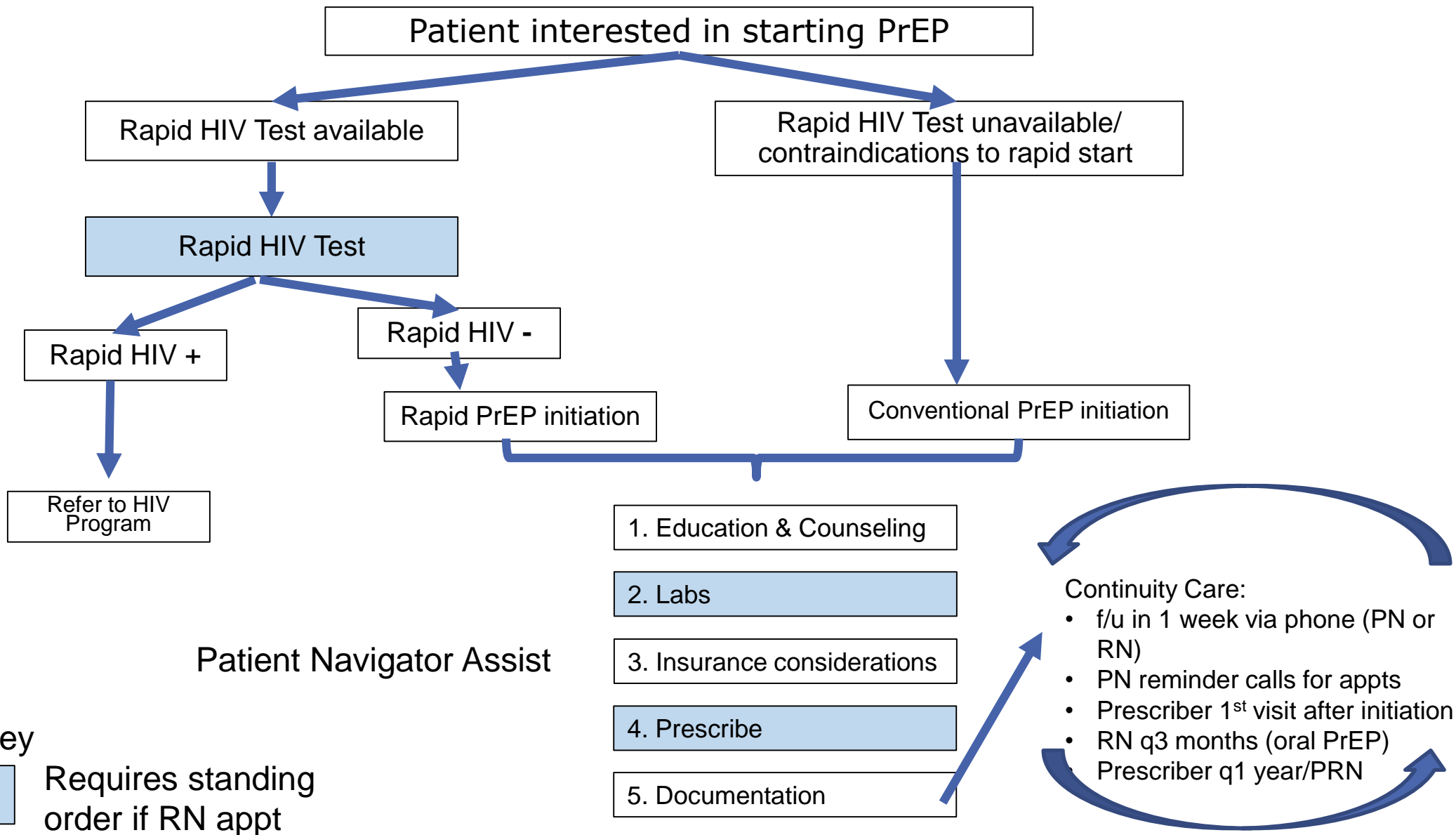


PDSA- Process For Implement QI

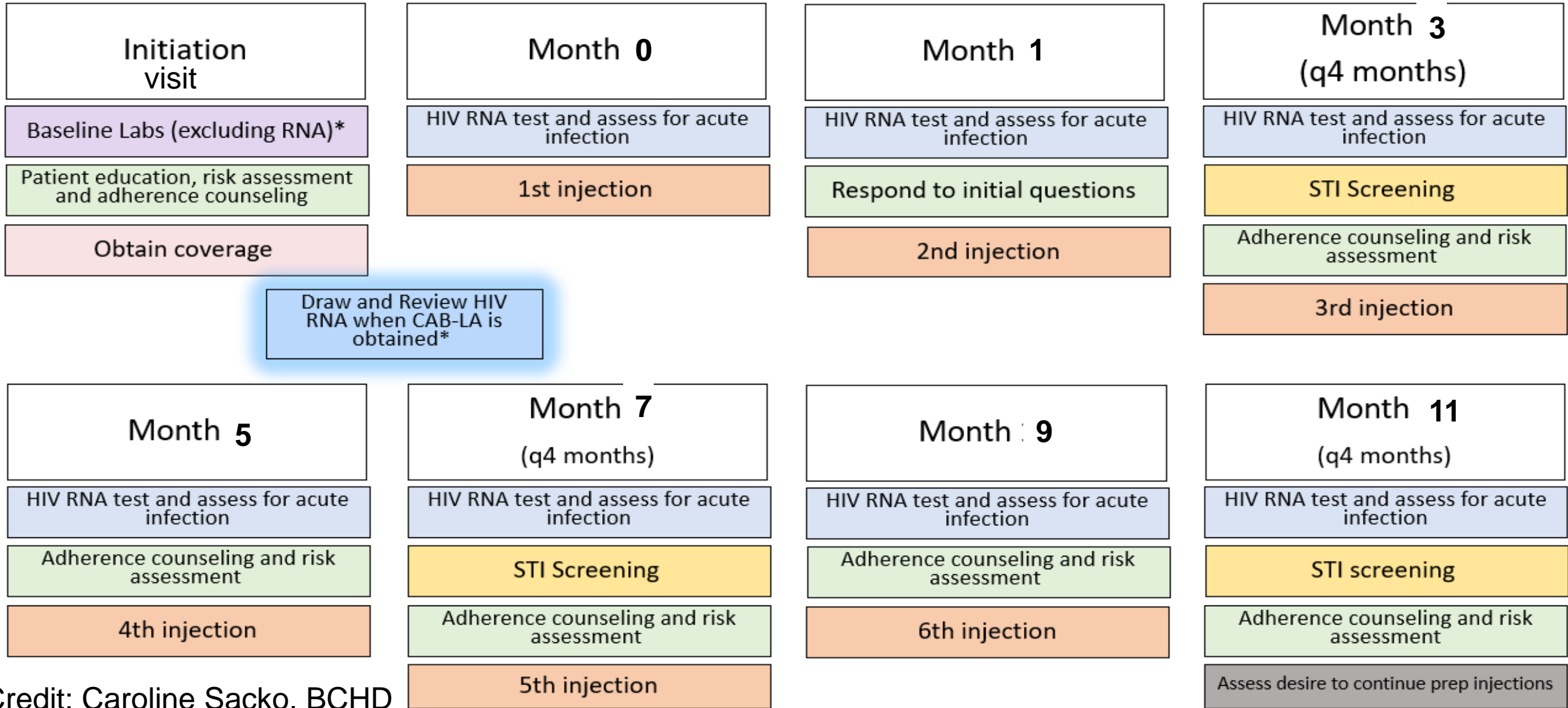
Don't let "perfect" be the enemy of "good"



Sample Flow



CAB-LA Visit Schedule

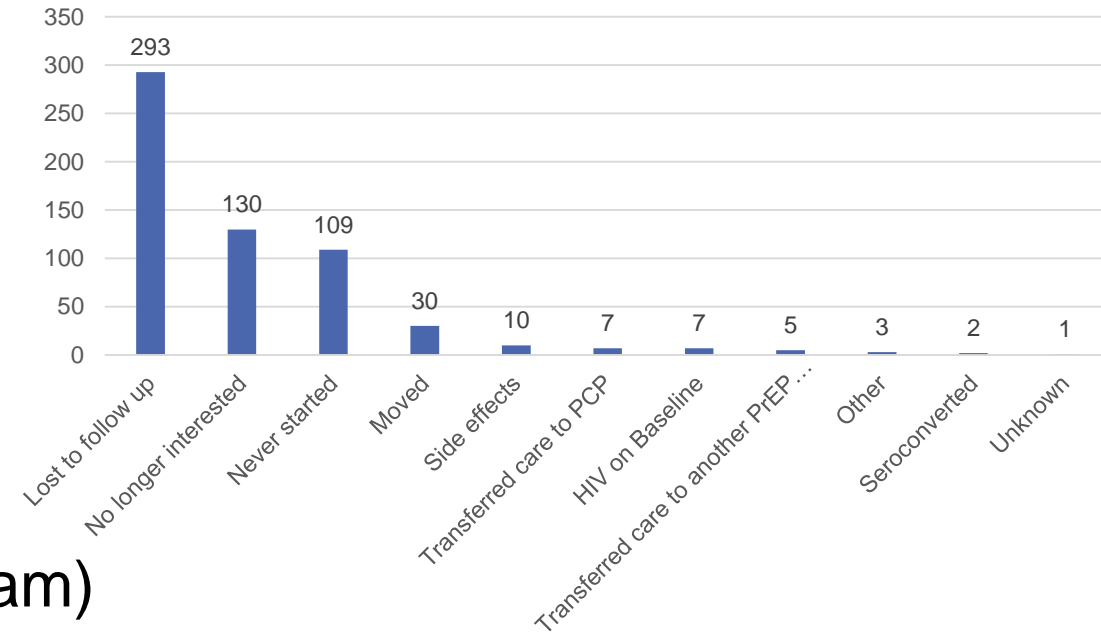


Credit: Caroline Sacko, BCHD

Possible Indicators/ Data

- Safety
 - Reason for discontinuation
 - Adverse events
 - Does care match guidelines?
- Satisfaction
 - Patient survey/interviews
 - Staff survey/interviews
- Effectiveness (dependent on intent of program)
 - Number of new PrEP starts
 - Number of total PrEP patients
 - Program costs/ level of visits billed
 - PrEP Adherence and Retention?

Reasons for D/C



Reason for d/c	Per guidelines?	other notes	Clinician(s) involved
HIV positive at baseline	y	teleprep appt to transition care, pos on baseline testing, no PrEP given, transitioned to HIV program	RN
Medication side effects	y	RN start, possible allergic reaction, went to urgent care, provider involved, allergy review documented at intake with no contraindications	RN/Prescriber
seroconverted	y	lapse in PrEP meds, came to reinstate with RN visit, no meds prescribed until labs resulted, +	RN/prescriber



Other considerations

- Level/position description of RNs
 - What do you need vs. what can you teach
- RN-led \neq RN does everything
 - Support staff very important
 - Prescriber still has important role
 - task shifting model
- Capacity/ staffing ratios
- Training



Training Resources



National **STD** Curriculum

www.std.uw.edu

This curriculum is funded by the U.S. Centers for Disease Control and Prevention (CDC) and developed by the University of Washington STD Prevention Training Center as part of the National Network of STD Prevention Training Centers (NNPTC).



National **HIV** Curriculum

www.hiv.uw.edu

The National HIV Curriculum is supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) as part of a financial assistance award totaling \$1,021,448 with 0% financed with non-governmental sources.

Other Resources

- Current PrEP guidelines
 - <https://www.cdc.gov/hiv/pdf/risk/prep/cdc-hiv-prep-guidelines-2021.pdf>
- Current nPEP guidelines
 - <https://stacks.cdc.gov/view/cdc/38856>
- New York State clinical guidelines, includes HIV, PEP and PrEP
 - <https://www.hivguidelines.org/>
- Paying for PrEP
 - <https://www.nastad.org/prep-access/prep-assistance-programs>
 - <https://www.nastad.org/sites/default/files/resources/docs/nastad-prep-coverage-brief-on-prep-services.pdf>
- Warm line consultation from UCSF, also great resources
 - <https://nccc.ucsf.edu/>
 - (855) 448-7737 or (855) HIV-PrEP; Monday – Friday, 9 a.m. – 8 p.m. ET
- Aids Education and Training Center Program (AETC)
 - <https://aidsetc.org/>
 - Local: <https://aidsetc.org/aetc-program/johns-hopkins-university>
- National Network of Clinical Prevention Training Center (NNPTC)
 - National: <https://nnptc.org/>
 - Local: <https://www.stdpreventiontraining.com/about-us/>
- IAS-USA (good resource for free webinars, classes, conferences, etc.)
 - <https://www.iasusa.org/>



- The BCHD PrEP Team:
 - Caroline Sacko, MSN, RN
 - Melody Lopez, RN
 - Sarah Rives, CRNP, MPH
 - Aimee Murphy, PA
 - Kaitlin Poole, CRNP
 - Jesse Mesenburg, CRNP
 - Commia Max-Browne CMSW





Contact Info:

Shanna Dell, MPH, RN, ACRN

sdell2@jhu.edu

Phone: 443-452-7239