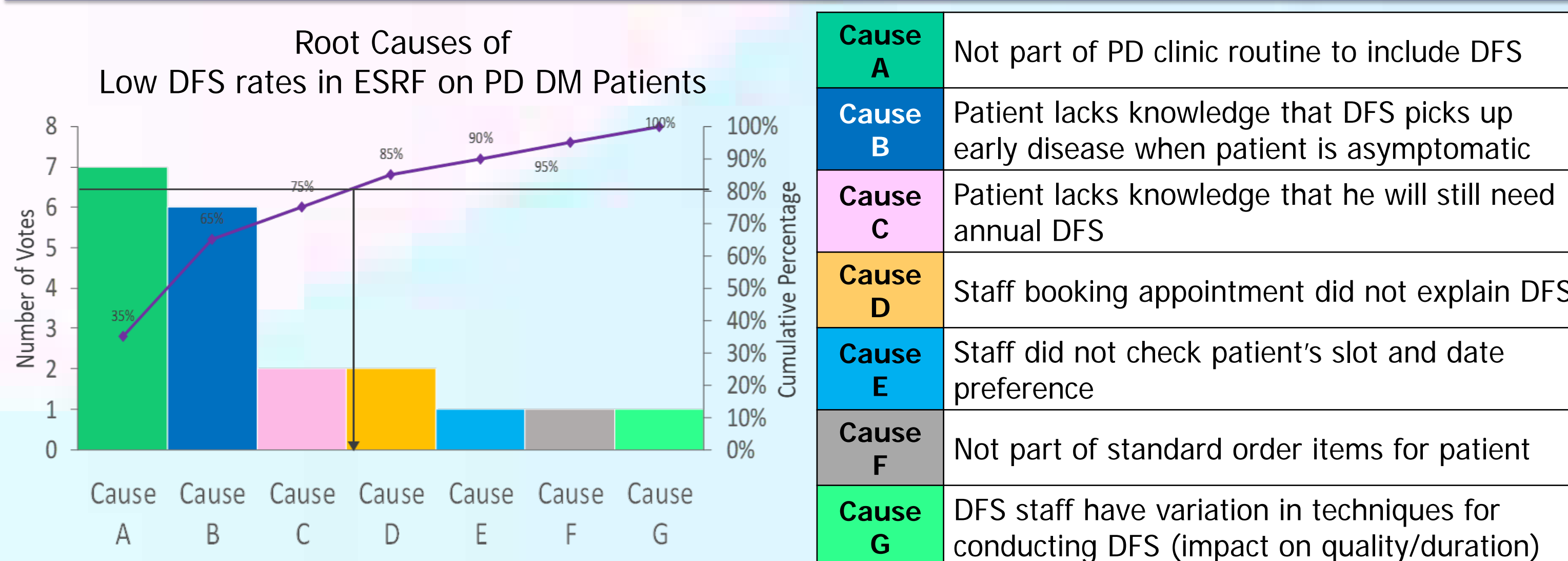


Pareto Chart

Root Causes of Low DFS rates in ESRF on PD DM Patients



Implementation

	Name	Designation	Department
Team Leaders	Dr Ryan Choo Rui-En	Consultant	Renal Medicine
	Dr Yeo Pei Shan	Consultant	Endocrinology
Team Members	Ms Saw Bee Ching (Elaine)	Senior Staff Nurse	Renal Medicine
	Ms Chua Jia Xian (Daphne)	Senior Staff Nurse	Endocrinology
	Ms Soh Si Lin	Executive	Ops Medicine (Clinic B2B)

1. Adj Asst Prof Yeo See Cheng (Renal Medicine HOD)
2. Dr Timothy Quek Peng Lim (Endocrinology HOD)
3. Ms Wendy Ho Yoke Ping (Nurse Clinician, Clinic B2B)

Mentor: Dr Chiu Li Qi

Root Cause	Intervention	Implementation Date
Cause A: Not part of PD clinic routine to include DFS	Intervention 1: Incorporate DFS as part of PD clinic routine (DFS: same-day service as PD clinic visit)	29 Apr 2022
Cause B: Patient lacks knowledge that DFS picks up early disease when patient is asymptomatic	Intervention 2: Patient Education Materials	13 May 2022
Cause C: Patient lacks knowledge that he will still need annual DFS		
Cause D: Staff booking appointment did not explain DFS	Intervention 3: Create a standardized template for patient service associates (PSAs) to advise patient, with a list of common FAQs.	10 Jun 2022



Effectiveness of Diabetes Foot Screening in Primary Care in Preventing Lower Extremity Amputations
 Gary Y Ang, ¹*MBBS, MPH, GDFM*, Chun Wei Yap, ¹*BSc (Pharm) (Hons), PhD*, Nakul Saxena, ¹*PhD*

Figure 2. Foot assessment in people with diabetes
 *The absence of a pulse does not exclude arterial disease (see Figure 2)

Medical History	Foot examination and tests*	Outcome
<ul style="list-style-type: none"> Previous foot ulcers or amputation Callus, including: <ul style="list-style-type: none"> Simple callus Thinning of callus Diabetes with callus requiring treatment Dorsal shoe 5 mmHg Plantar shoe <10 mmHg 17mm?/2mm? 	<p>Deformity</p> <ul style="list-style-type: none"> Charcot arthropathy Hallux valgus (bunion) Hammer or claw toe Callus with inflammation/bleeding <p>Foot examination and tests*</p> <ul style="list-style-type: none"> Absence of any pedal pulse with either ABPI <0.9 or toe pressure <40 mmHg ABPI <0.9 indicates impaired arterial blood flow Absolute systolic blood pressure <40 mmHg is associated with impaired wound healing ABPI <0.9 in people with diabetes does not exclude PAD, so it could still be a false elevation Absolute systolic blood pressure <90 mmHg is a strong indicator to determine a PAD A toe pressure <40 mmHg is specific for PAD or arterial insufficiency <p>Inability to feel 10g monofilament at any of the eight tested sites. This indicates loss of protective sensation.</p>	<p>Deformity</p> <p>PAD</p> <p>Neuropathy</p>

Credits: NHG National DM Collaborative D3V Workgroup Slides
Improving DM Foot Screening in High Risk patients
(Pilot at TTSH B2B Endocrine Clinic)

Risk Factor	Odds Ratio (95% CI)
No diabetes foot screening	6.3 (3.7 – 10.6)
HbA1c categories	
Below 7.0	Reference
7.0 – 7.9	2.1 (0.7 – 6.1)
8.0 – 8.9	3.9 (1.4 – 11.1)
9.0 and above	5.6 (2.3 – 13.2)
Unknown	2.0 (0.9 – 4.4)
Chronic kidney disease	1.8 (1.2 – 2.8)
Duration of diabetes	1.1 (1.0 – 1.1)
Gender	
Male	Reference
Female	0.6 (0.4 – 0.9)
HbA1c: Glycated haemoglobin	

**CKD stage 5 patients
= High Risk Group**

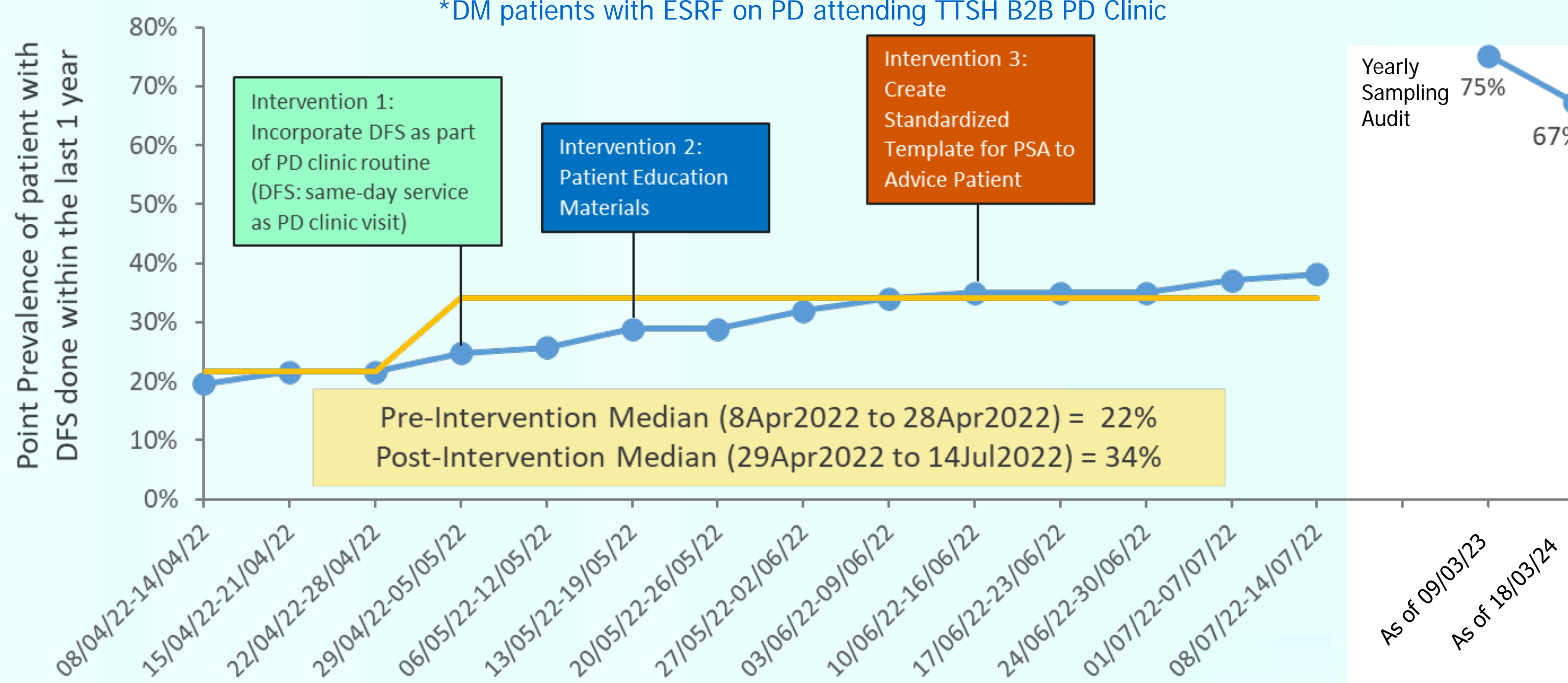
Clinical Impact to Patients

Prevent Major & Minor Amputations

Results

Period: 8 April 2022 to 18 Mar 2024

*DM patients with ESRF on PD attending TTSH B2B PD Clinic



	08/04/22- 14/04/22	15/04/22- 21/04/22	22/04/22- 28/04/22	29/04/22- 05/05/22	06/05/22- 12/05/22	13/05/22- 19/05/22	20/05/22- 26/05/22	27/05/22- 02/06/22	03/06/22- 09/06/22	10/06/22- 16/06/22	17/06/22- 23/06/22	24/06/22- 30/06/22	01/07/22- 07/07/22	08/07/22- 14/07/22	As of 09/03/23	As of 18/03/23
No. of patients with DFS done within last 1 year	19	21	21	24	25	28	28	31	33	34	34	34	36	37	76	68
Point prevalence of patients with DFS done within last 1 year (Denominator, n = 97)	19.6	21.6	21.6	24.7	25.8	28.9	28.9	31.0	33.0	34.0	35.1	35.1	35.1	37.1	75.0	67.0

Estimated number of patients at LEAPP clinic = 120 patients
Out of which, there is an estimate of 1/3 of the LEAPP patients have ESRF = $120 \times 1/3 = 40$ patients
(22% of these patients = 9 patients)

Improving DFS rates will reduce need for (i) LEAPP clinic review as a result of (ii) lower limb tissue loss as well as (iii) potential amputation

	Pre-Intervention	Post-Intervention
DFS Rate	22%	34%
Number of patients had undergone DFS in the last 1 year	9	14

(An estimation), if we are able to avoid major amputation in 1 patient

- 1 LEAPP Clinic First Visit Cost (\$120)
- 1 LEAPP Clinic Review Visit Cost (\$60-\$80)
- 1 Major LL Amputation Cost including hospitalization (\$45000)

* Cost estimates by NHG National DM Collaborative D3V

- Balancing of DFS appointment resource to ensure sufficient DFS slots ring-fenced for these patients seeing PD clinic on the same day versus minimizing slots wastage if not taken up by these patients
- New workflows and additional responsibility for the PD clinic members (especially patient service associate (PSA))

- Incorporate pre-screening of DFS into routine PD clinic workflow
- Continue current interventions
- May want to reduce data measurement frequency and collation of point prevalence data to a monthly or 2 monthly timeline

Low DFS rates in ESRF on PD DM Patients

Cost

- Patient not aware that it is DFS medivase deductible
- Patient worried about cost
- Staff did not explain DFS price
- Patient no \$\$

Patient

- Patient feels well
- Patient lacks knowledge that DFS picks up early disease when patient is asymptomatic
- Patient does not think DFS is necessary
- No on explained DFS report to patient
- No feedback given to patient
- Staff booking appointment did not explain DFS details / procedure
- Patient not aware what to expect for DFS procedure before coming
- DFS took longer than expected
- Patient unable to understand instructions to do DFS efficiently
- Language barrier
- DFS staff have variation in techniques for conducting DFS (impact on quality/duration)
- DFS staff not able to give patient clear instructions when performing DFS
- Patient lack knowledge that he will still need annual DFS
- Patient upset by previous experience
- Told to have "normal" DFS
- No perceived benefit from previous DFS

Logistic

- Limitation of DFS appointment slots
- Appointment booked versus patient's preference different
- Staff did not check patient's slot and date preference
- Wrong residential address provided by patient
- Wrong phone number provided by patient
- Generic reminder for appointment was not informative
- Lack of DFS appointment reminder for patient
- PSA did not choose preferred reminder route
- Doctor knows patient needs DFS did not offer
- No time / bandwidth to counsel on DFS
- Not part of standard order list for patient
- Doctor forgot to order DFS
- Doctor too busy / distracted
- Doctor not aware that DFS service available in B2B
- Not a medical priority
- Doctor thinks that it is not necessary as he is not the main doctor taking care of diabetes

Doctor

- Doctor did not check if patient needs DFS, variation in practice.
- Not part of PD clinic routine to include DFS
- Doctor knows patient needs DFS, don't know how to check if DFS is needed
- Doctor lack knowledge on guidelines that patient needs DFS
- Doctor did not think of DFS