Patient safety culture from the perspectives of patients, staff and improvement teams

-A three-pronged effort from a fearless orginazation

Chief Nurse Sabina Annika Lund
Chief Therapist Lisbeth Schrøder

REGION ZEALAND
SLAGELSE HOSPITAL

14 Departments
2.995 Employees
360 Beds
336.000 Patient contacts annually

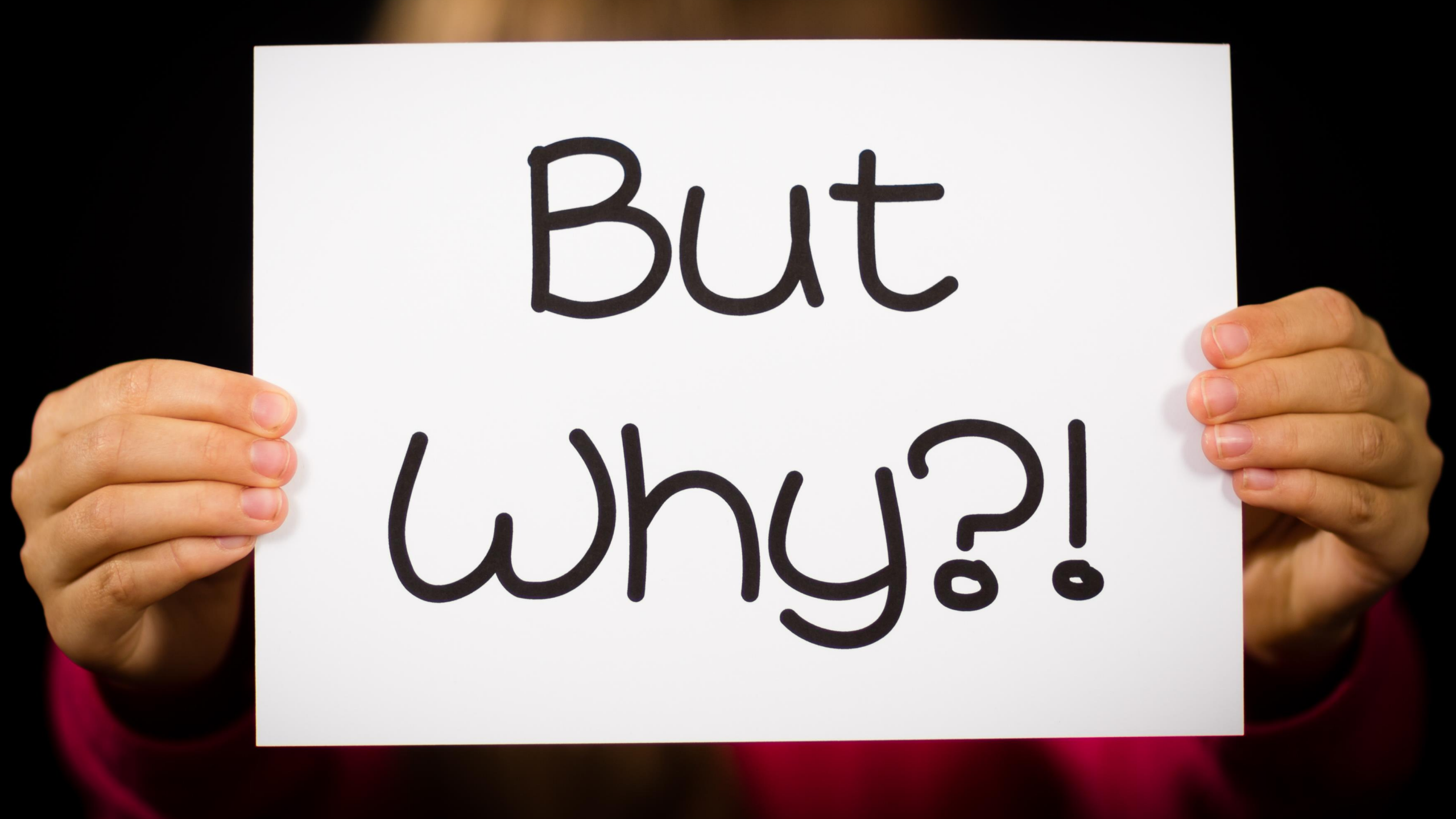
Team

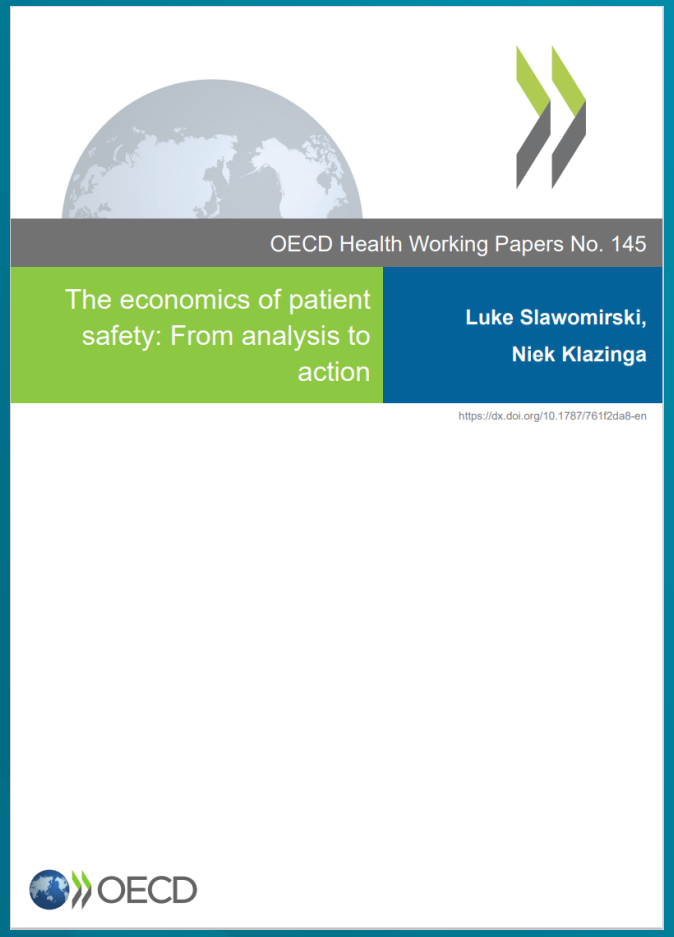
Surgical Department:

- Chief Nurse
- Quality coordinator
- Engineer

Medical Department:

- Chief therapist
- Quality coordinator


But
why?!



The 2022 report highlights that 15% of OECD countries' hospital spending can be attributed to the handling of errors and patient harms.


Silo thinking


Quality teams

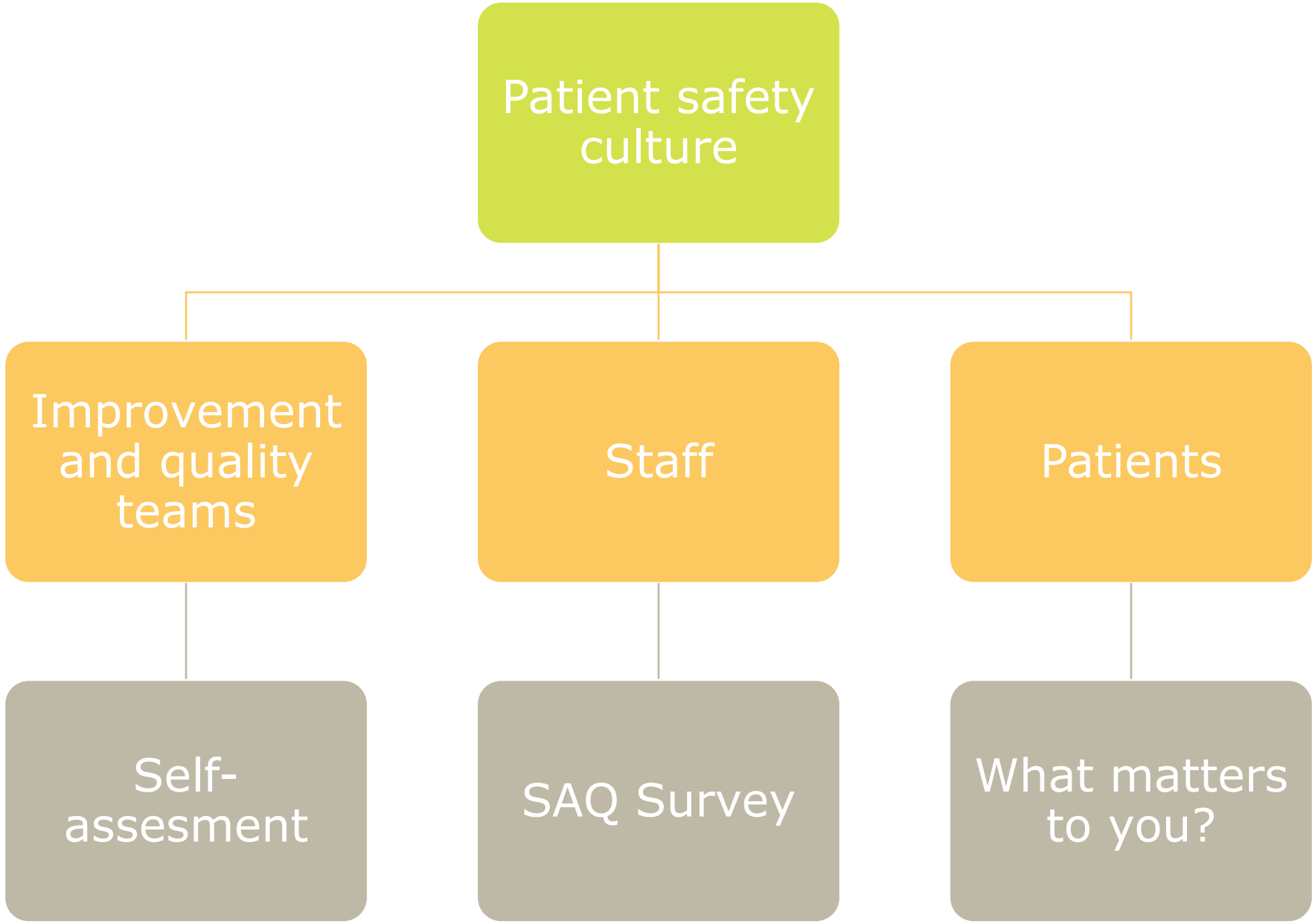

SAQ survey

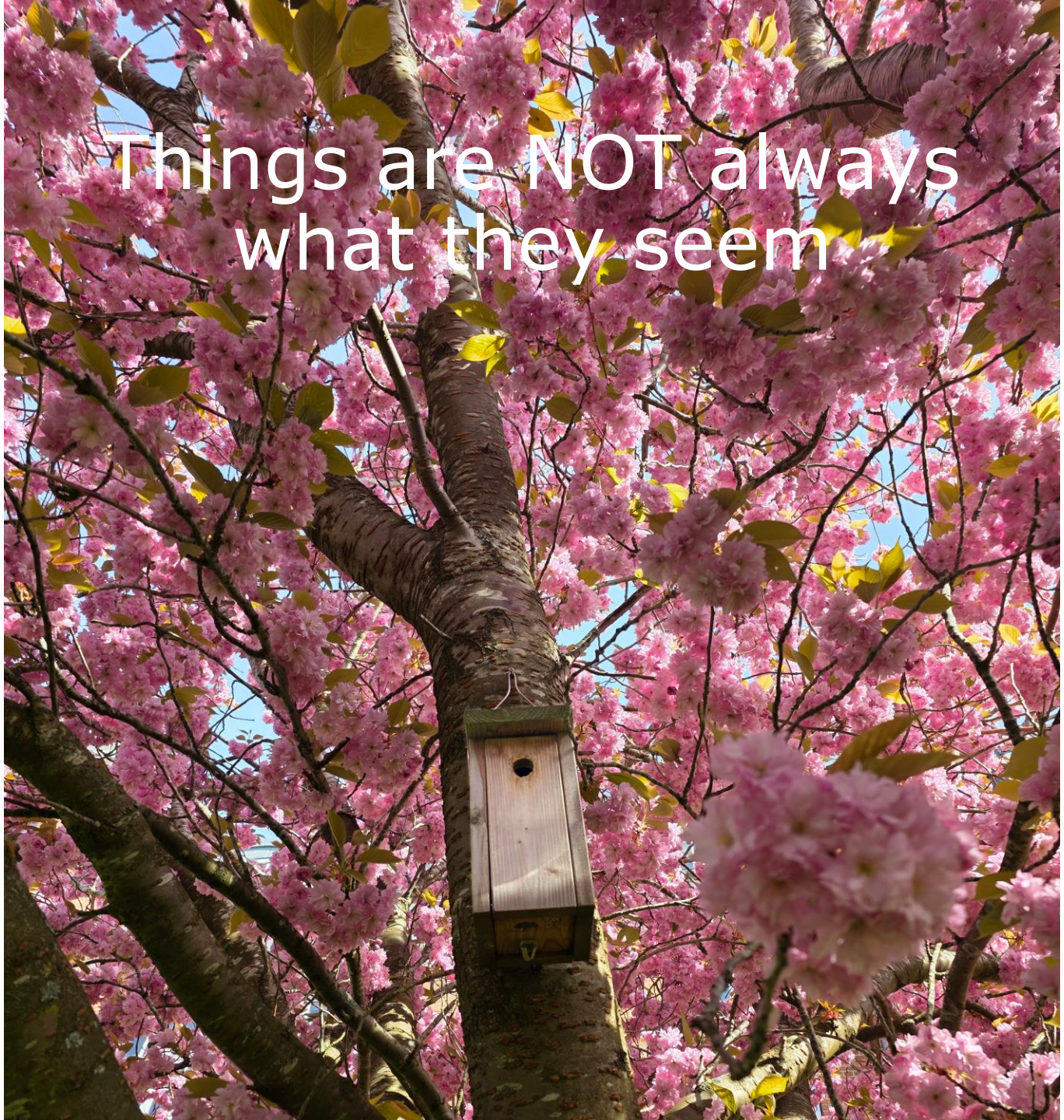

Inspiration at IHI

A novel three-pronged model

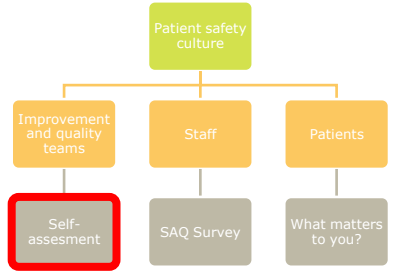


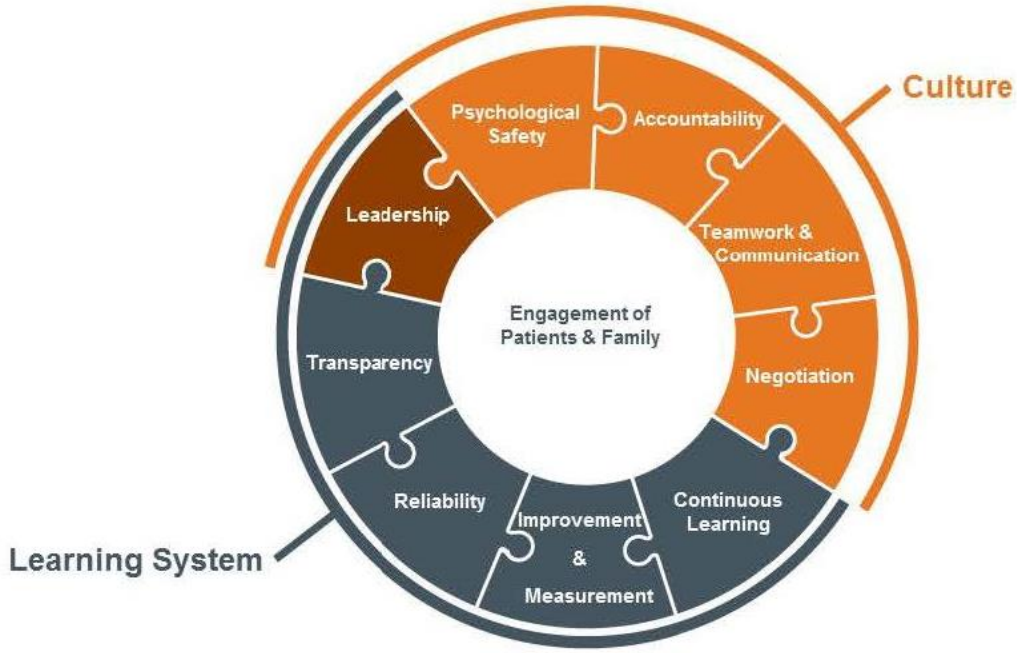
3 perspectives related to patient safety work

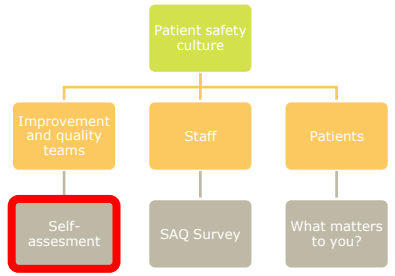

Patient safety culture
Improvement and quality teams
Staff
Patients
Self-assesment
SAQ Survey
What matters to you?


Things are NOT always
what they seem

Self-evaluation







1. Psychological Safety

Creating an environment where people feel comfortable and have opportunities to ask questions, ask for feedback, be respectfully critical, and suggest ideas.

Just beginning	Making progress	Significant impact	Exemplary
• Policies may state that staff should feel psychologically safe but leaders and managers do little to actively practice or encourage this. • Staff are reluctant to speak up for fear of ridicule or negative reactions from fellow staff, even when there is imminent danger to the patient. • Feedback is only provided through formal process such as appraisal and this feels like a superficial exercise to most staff. • Staff rarely receive feedback after reporting an adverse event.	• Some leaders and middle managers model the behaviors associated with psychological safety but this is not standardized across the organization. • Many staff don't feel comfortable speaking up although they may be likely to in cases of imminent danger to a patient. • Staff are not generally forthcoming with innovations or suggestions as they feel they won't be taken seriously. • Staff usually receive superficial feedback after reporting an adverse event.	• All leaders and middle managers encourage staff to speak up, address behaviors that do not support psychological safety, and are transparent with communications and data. • The hierarchy is not flat but there are many examples of learning from feedback or appropriate criticism. • Innovations that staff suggest are regularly tested and implemented after successful tests. • All staff receive detailed feedback and thanks for reporting an adverse event.	• All staff feel comfortable to ask questions, ask for feedback, be appropriately critical, and suggest innovations. • All staff are actively encouraged to do the above; it is expected at all levels of the organization. • There is a flat hierarchy that supports this behavior and a learning system that is responsive to the information. • Leaders clearly demonstrate these activities and behaviors. • Learning from adverse events is routinely and effectively shared across the organization.

Please provide a brief description of the type of data or other evidence you used to inform your choice:

9. Leadership for Improvement

The capability of the leadership of the organization to set clear and measurable goals, expectations, priorities, and accountability for the improvement of safe and reliable care. The support necessary to integrate improvements and learning across the continuum is provided. *(From Framework: Facilitating and mentoring teamwork, improvement, respect, and psychological safety.)*

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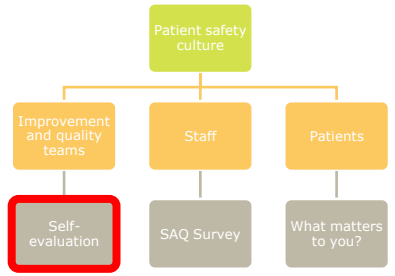

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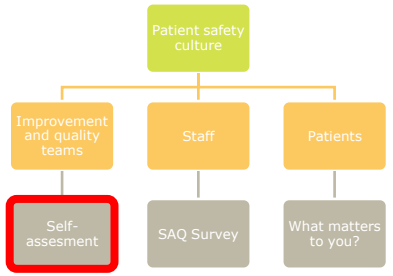

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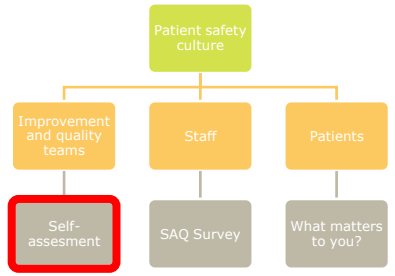

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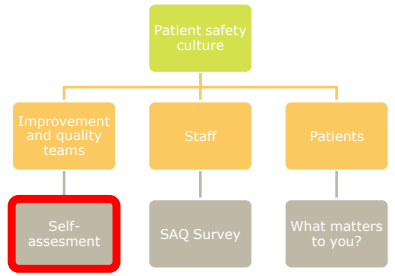
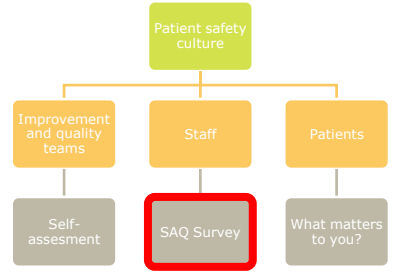


How did you experience the self-assesment?

SAQ Survey

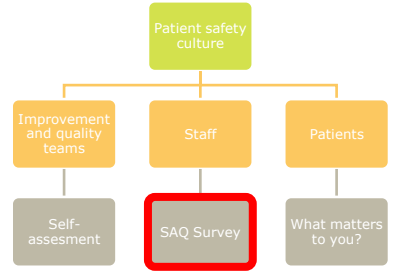
14 questions from the SAQ survey:

- Collaboration climate
- Safety climate
- Improvements



2023
Invitation to 490 employees
28% answered

2024
Invitation to 762 employees
34% answered

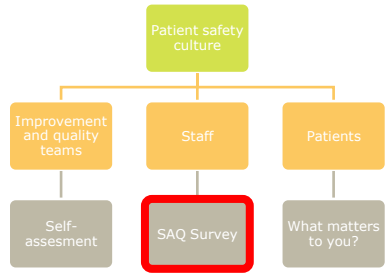


In 2021 there were 357 adverse events

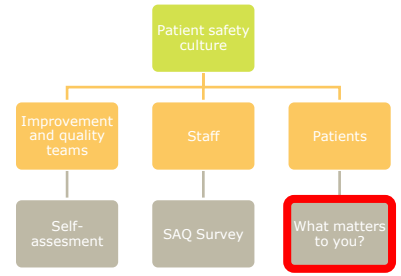
In 2022 there were 321 adverse events

In 2023 there were 453 adverse events

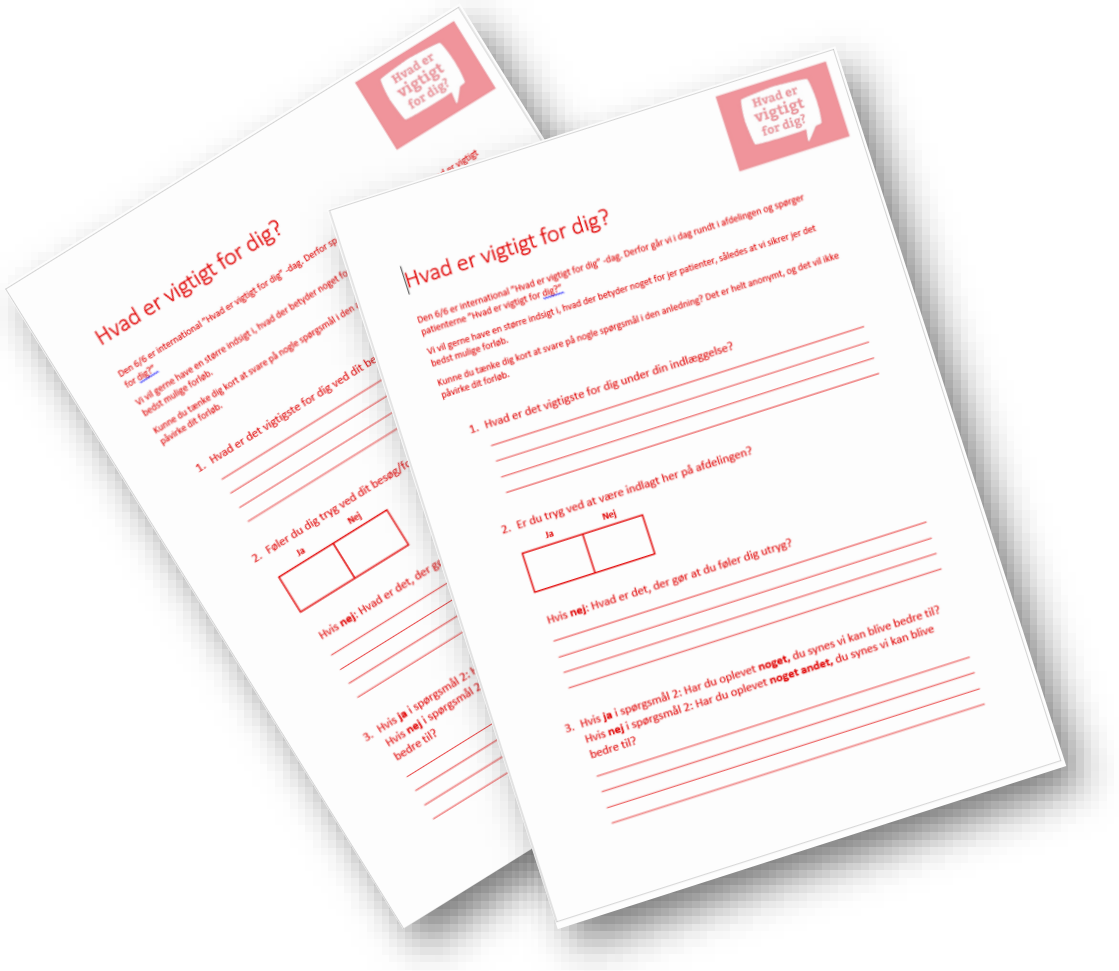
In 2024 there were 776 adverse events



What is your thoughts on the questionaire?

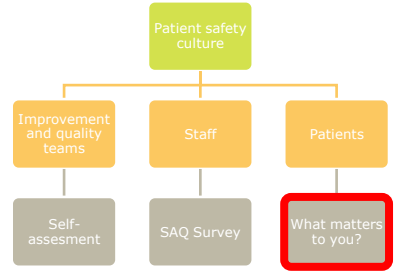


What matters to you?



- What matters to you during your hospitalization?
- Do you feel safe being admitted in this ward?
- Any suggestions for improvement?

Do you feel safe?



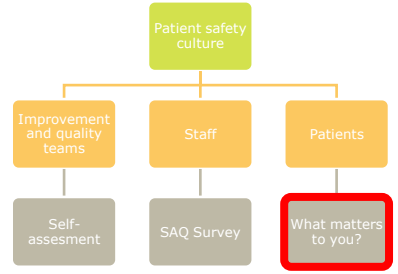
2023	
Yes	69
no	3

2024	
Yes	111
no	8

2023


Psychological
Own health
Organizational
Information
Care & Treatment
After discharge
Patient involvement
Staff behavior
Exersize
Physical

2024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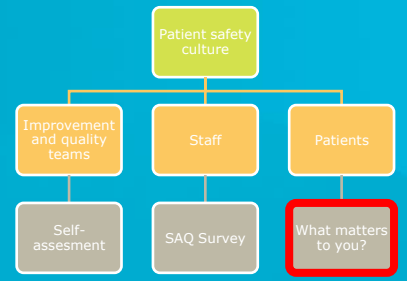


Correct medication

More training

That I feel safe

I want to go home

Methods for Improvements

Scale

- Culture takes time and is never-ending
- Listen to ideas from staff
- Tell others

Take home message

Take home message

Leadership, Listen, and Learn

New partners – New perspectives

Steal Steal Steal

Take home message

Leadership, Listen, and Learn

New partners – New perspectives

Steal Steal Steal

Thank you for your time

Sabina Annika Lund Sabl@regionsjaelland.dk
Lisbeth Schrøder Lscd@regionsjaelland

Measuring and Monitoring of Patient Safety Framework

Lessons Learned from Our Clinical Improvement Team

Saskatchewan Health Authority
University of Saskatchewan
Saskatoon, Saskatchewan, Canada
Kidney Health Peritoneal Dialysis Program

Dr. Rod Stryker
Dr. Tiffany Blair
Dr. Nicolette Sinclair

Disclosures and Potential Bias

Dr. Rod Stryker, FRCPC

Nephologist and Medical Lead

- Speaking Honorarium From Bayer

Dr. Tiffany Blair, PhD

Director, Acute Care

- None

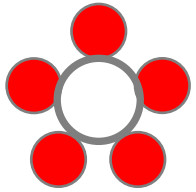
Dr. Nicolette Sinclair, FRCPC

Interventional Radiologist

- None

Objectives

- Identify success factors for the clinical improvement team model
- Understand the importance of having patients and families as partners in program design
- Understand the importance of the measuring and monitoring of safety framework:
  - Past harm
  - Reliability
  - Sensitivity to Operations
  - Anticipation and Preparedness
  - Integration and Learning



'*Home First*' Principles

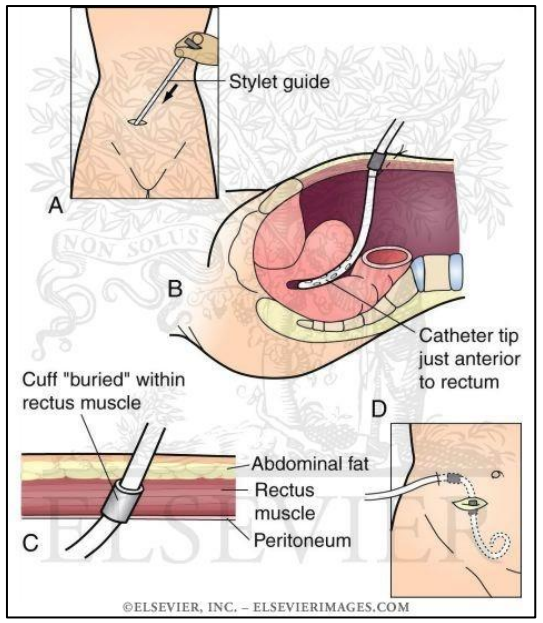
- Focus on patient-centred care and supporting patient self-management
- Team approach to care, with the patient at the centre
- Engagement at all levels of the health service, supported by a clear vision and both clinical and executive leadership
- Capture patient and family, community, and staff stories to express the impact of co-design

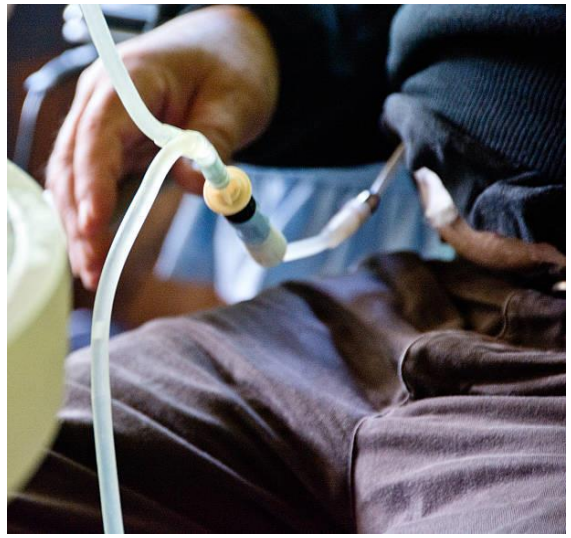
Case

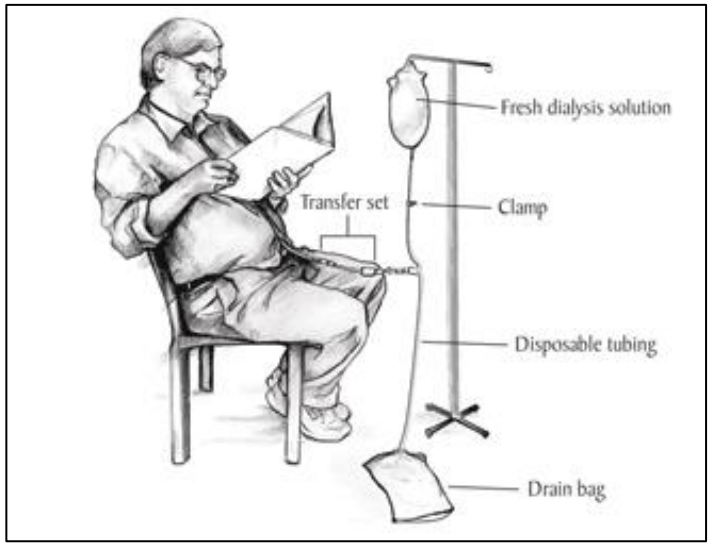
- 58 year old male teacher
- Lives near North Battleford
  - (2.5 hrs from Tertiary Care Centre)
- Hypertensive, newly diabetic
- Creatinine 500 mcmol/L
  - eGFR 10 ml/min
  - (creatinine 700 mcmol/L = GFR <7 ml/min)

Patient needs to decide on end stage kidney disease (ESKD) treatment options

Why Peritoneal Dialysis?







Peritoneal dialysis (PD) is an important model of a *Home First* therapy to avert or delay the need for hemodialysis and uses the peritoneum and dialysate solution to clean the blood

Background and Significance

As part of the Saskatchewan Health Authority Sustainability Plan, Kidney Health and Radiology partnered to achieve best practice for PD catheter insertions by providing a minimally invasive and timelier alternative to current surgical PD catheter means of insertion.

Home Dialysis Rates *

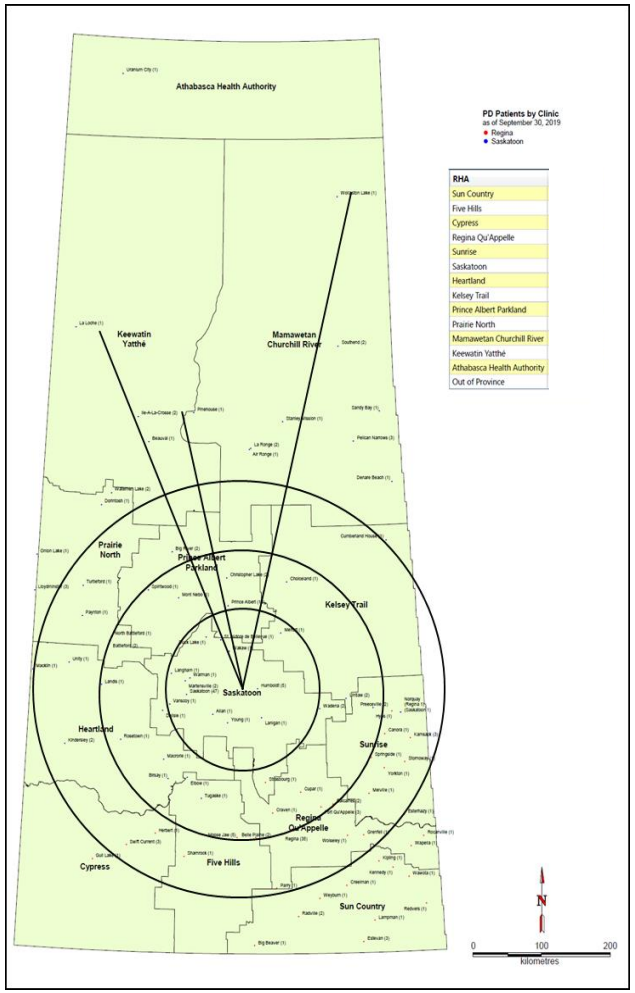
Location	PD	HHD	Total	Target
Australia	20%	9%	29%	40%
New Zealand	31%	19%	50%	60%
Canada	18%	4%	22%	30%
Saskatchewan	22%	3%	25%	40%
Saskatoon	26%	4%	30%	40%
Regina	17%	2%	19%	40%

* ISPD 30%
**Sask Provincial Dialysis Working Group 2019-20

Reaching a target of 40% will require new strategies, investment, and a better understanding of patient and family preferences

* United States Renal Data System
United States Renal Data System. 2018 USRDS annual data report: Epidemiology of kidney disease in the United States. National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, MD, 2018

Saskatchewan Health Authority
Kidney Health – North/Saskatoon



Western Canadian Province

Population 2024: 1,250,909

17% of persons identify as First Nations or Métis
- (Canadian Average = 5%)

64.4% of persons live in Urban Area
- (Canadian Average = 83%)

North (Saskatoon) Tertiary Care and Kidney Health
South (Regina) Tertiary Care and Kidney Health

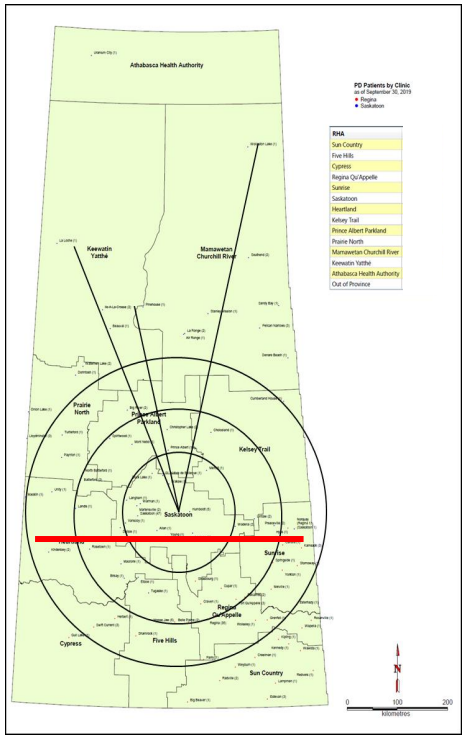
Saskatoon End Stage Kidney Failure Numbers - 2025

	Transplant	Hemodialysis	Home Hemodialysis	Peritoneal Dialysis
Total (number)	536	492*	14	120
Ave. Age (yrs)	55	57.6	59.4	57.7%
Diabetic	24%	59%	21%	43%
First Nations and Métis	14%	54%	14%	26%
>75 years	7%	16%	3%	17%
Male	61%	56%	43%	56%
% *ESKD Care	49%/all ESKD	79%	2%	19%

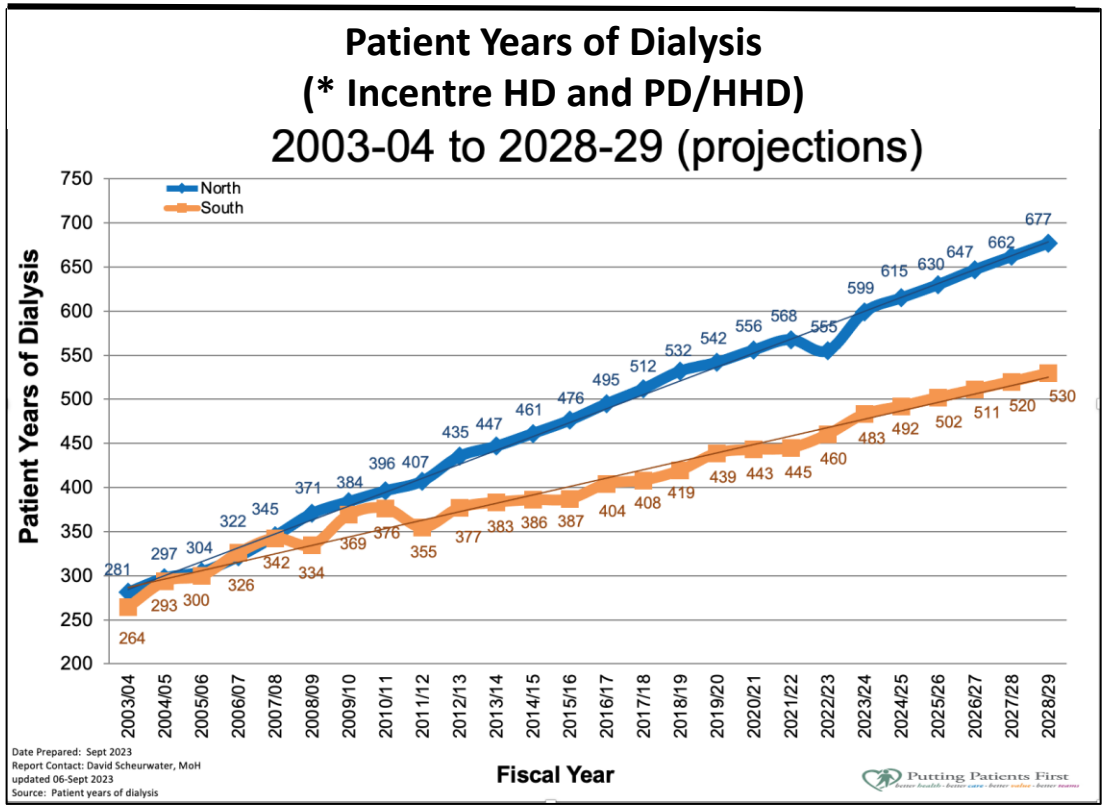
* 33.4% Hemodialysis in Rural Satellite

64.2% of PD Patients live in Rural or Small City/Town

Fly in/full day drive



Population Projections



~6% yr Growth ESKD in Saskatoon

HD	Hemodialysis
PD	Peritoneal Dialysis
HHD	Home Hemodialysis

Annual Health Care Costs

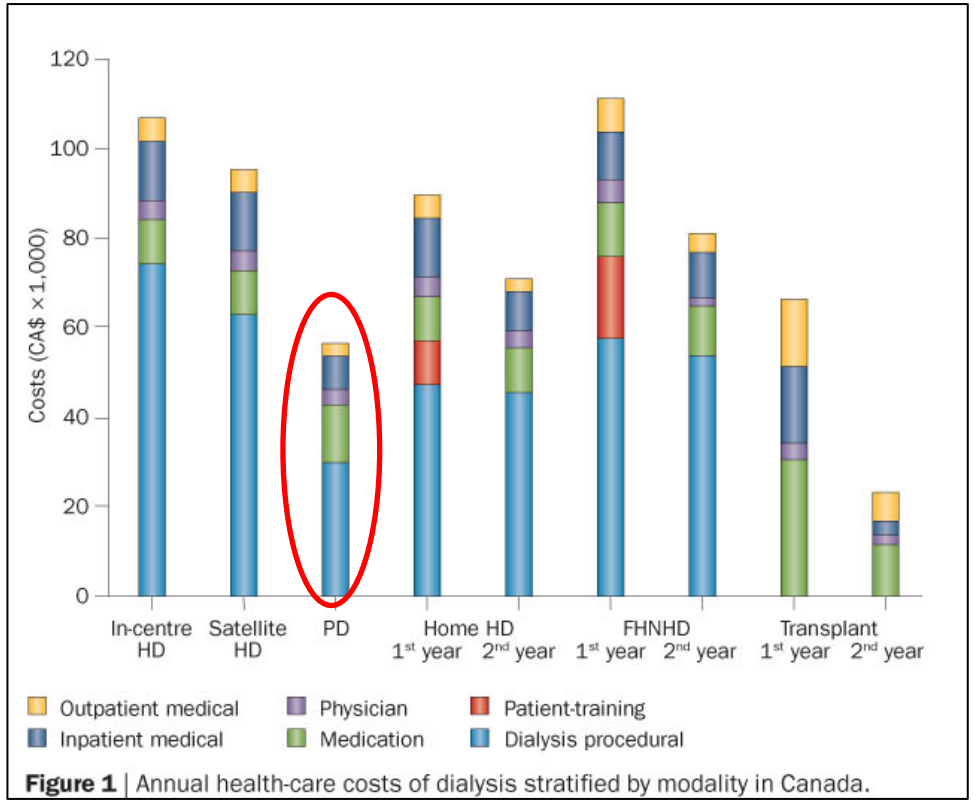
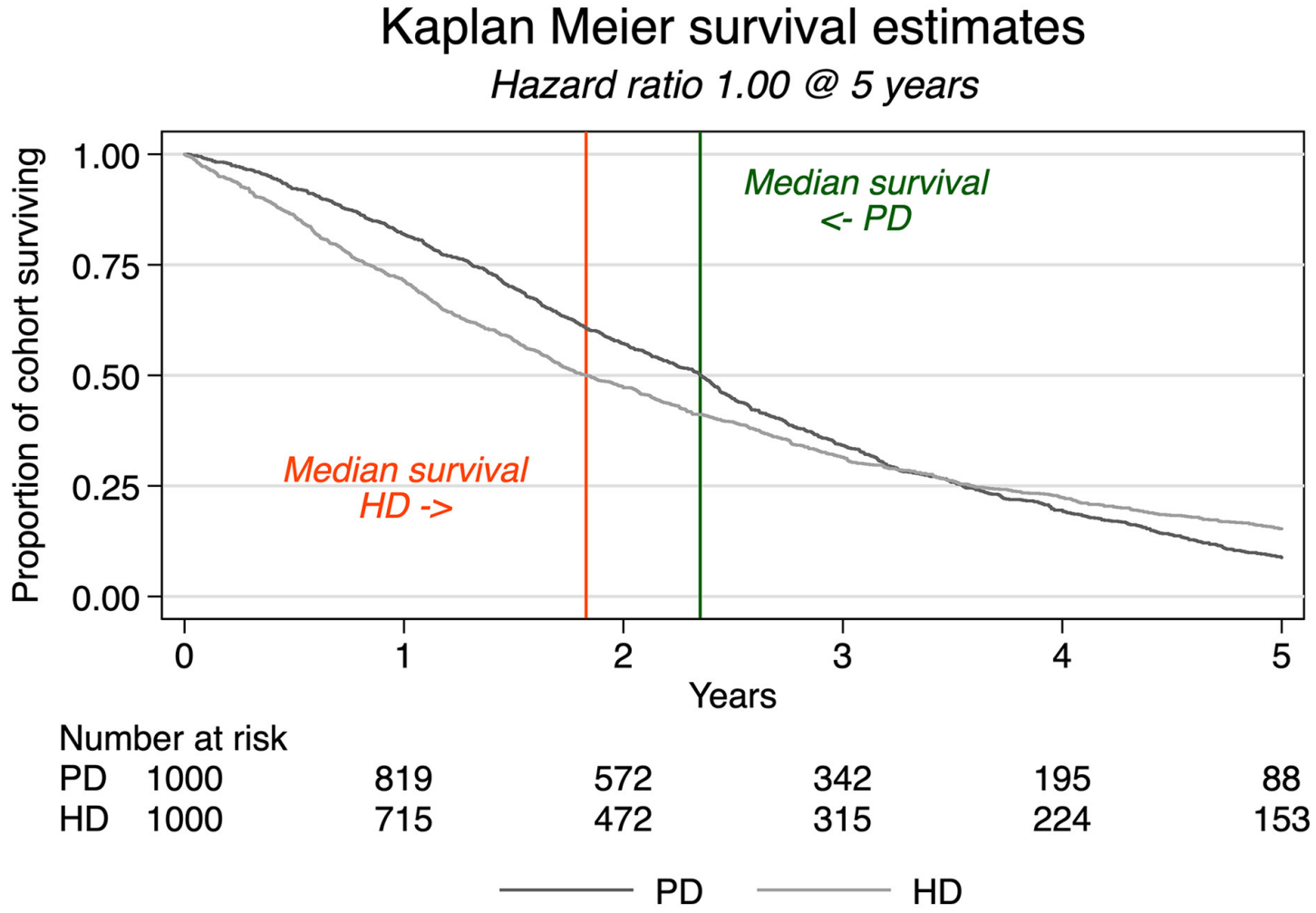


Figure 1 | Annual health-care costs of dialysis stratified by modality in Canada.

Nat. Rev. Nephrol. **10**, 644–652 (2014)



Longevity is greater in the peritoneal dialysis group

Marshall MR. The benefit of early survival on PD versus HD—Why this is (still) very important. *Peritoneal Dialysis International*. 2020;40(4):405-418. doi:10.1177/0896860819895177

Why Should We Promote Peritoneal Dialysis?

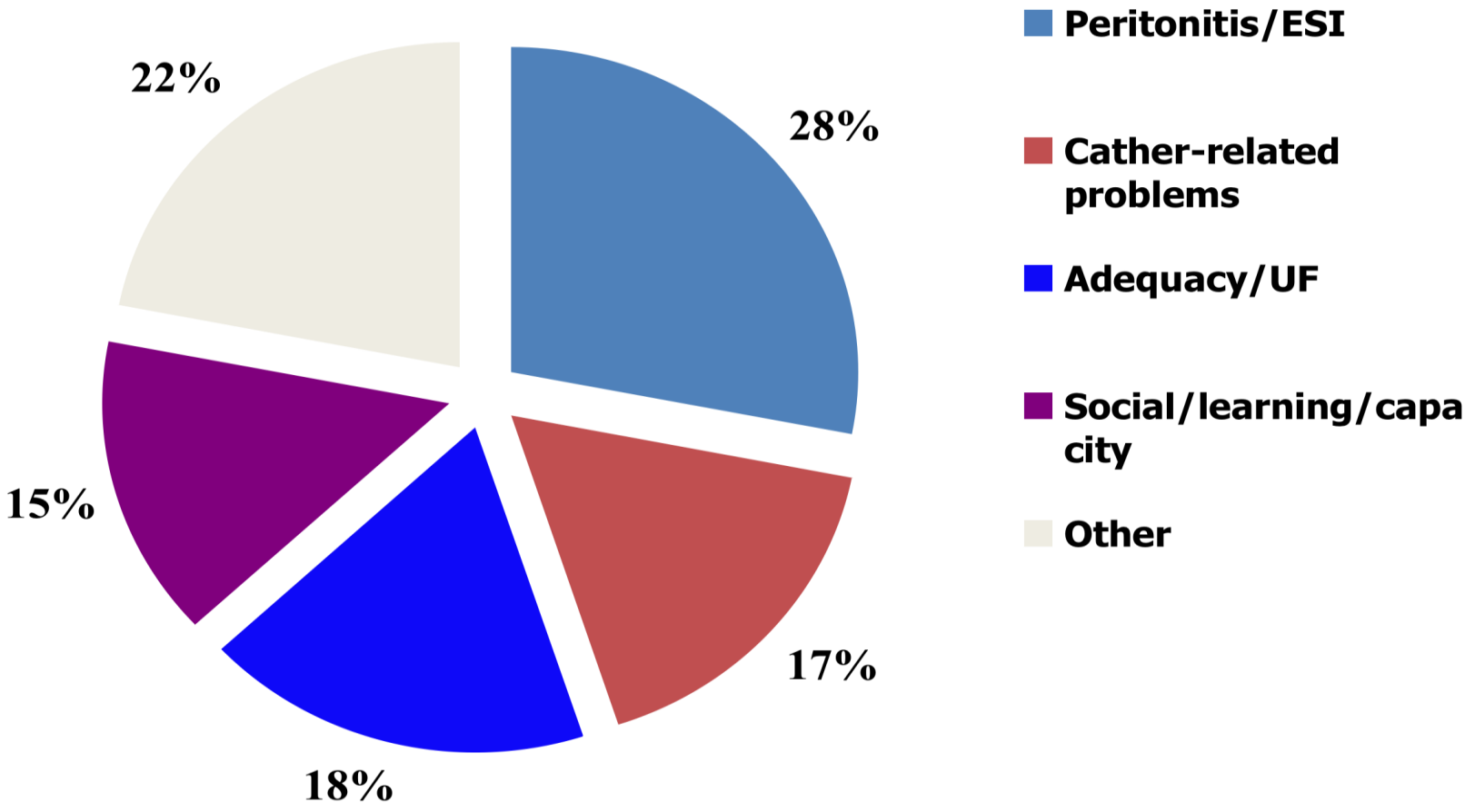
Pro's:

- Equivalent Survival Benefit to Hemodialysis
- Home-based care: Capacity for growth exceeds hospital-based dialysis
- Self-care, independence
- Fewer Diet restrictions
- Less travel

Con's:

- Stable/safe/reliable Housing
- Ability to do self-care
  - Dexterity
  - Vision
  - No days off
  - Care-giver continuously available?
- Less success if multiple prior abdominal surgeries, hernia's affecting abdomen/peritoneal cavity
- Catheter function

Reason for Transfer to Hemodialysis



Mujais and Story, KI, 2006

What was the patient safety risk?

Primary failure of PD Catheter

- Inserted PD catheter cannot be used/flushed and patient is not able to train due to PD catheter flow related issues; national target for primary failure is <10% at 3 months

Secondary failure of PD Catheter

- Patient is trained but ultimately has to stop PD due to major issue
- Due to catheter: catheter flow issue
- Not due to catheter: catheter is in good position by imaging but drainage is poor (typically due to “fecal loading”)
- Due to complication: leak at insertion site

Review of Literature

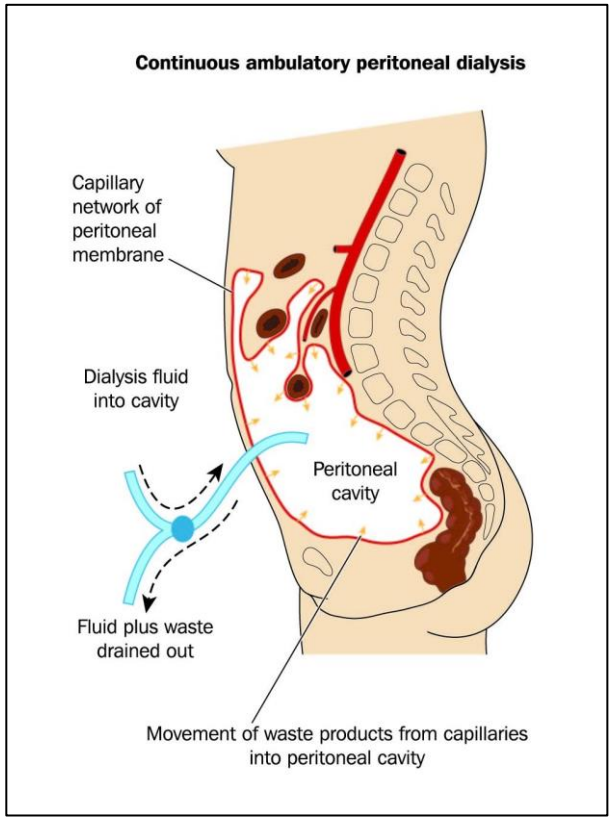
Significant variation in PD Catheter Function Rate and Operational Definitions

PD Catheter Failure Rate

Previous methods of PD catheter insertion resulted in high failure rates (surgical and interventional radiology combined, insertions within 3 months) in Kidney Health patients:

- 2016 1º and 2º failure rate 25/62 40.3%
- 2017 1º and 2º failure rate 19/71 26.8%
- 2018 1º and 2º failure rate 11/50 22.0%
- 2019 1º and 2º failure rate 12/54 22.2%
- 2020 1º and 2º failure rate 5/57 8.8%

From 2016-2020, 31.5% ↓ in PD catheter failure rate



Nationally, the target for primary failure is <10% at 3 months*

- PD catheter failure rates are associated with a significant burden and hardship to the patient, and an overall increase in cost to the health system due to additional procedures/test to diagnose and correct complications

ISPD Guidelines – Creating and Maintaining Optimal PD Access in the Adult Population: 2019 Update on Best Practice (Crabtree et al 2019) - Catheter patency : % or probability of catheter survival at 12 months following placement

Measuring and Monitoring of Safety Framework Research Question

Will the implementation of MMSF improve PD catheter failure rate and patient experience?

Kidney Health and Interventional Radiology Operational Objectives

- To improve quality, safety and access to care for patients and families through the implementation of the MMSF
- To facilitate more effective use of financial resources by redirecting existing surgical procedures for PD catheter insertion to Interventional Radiology
- To integrate research and PD program operational initiatives
- To improve the patient and family experience, and provider satisfaction
- To partner with First Nations and Metis patients, families and communities to develop a more culturally sensitive PD model of care
- Develop a nursing model with Medical Imaging to provide procedural PD catheter insertion support

In Saskatchewan, First Nations and Métis people had higher burden of ESKD severity, utilized fewer home-based dialysis therapies, and have longer travel distances than their non-First Nations counterparts

Changing the Questions…Measuring and Monitoring of Safety Framework

Past Harm

Has patient care been safe in the past?

We need to assess rates of past harm to patients, both physical and psychological

Reliability

Are our clinical systems and processes reliable?

This is the reliability of safety critical processes and systems but also the capacity of the staff to follow safety critical procedures

Sensitivity to Operations

Is care safe today?

This is the information and capacity to monitor safety on an hourly or daily basis

Anticipation and Preparedness

Will care be safe in the future?

The ability to anticipate, and be prepared for problems and threats to safety

Integration and Learning

Are we responding and learning?

The capacity of the organization to detect, analyze, integrate, respond and improve from, safety information

Practical Guide: A Framework for Measuring and Monitoring Safety. The Health Foundation 2014

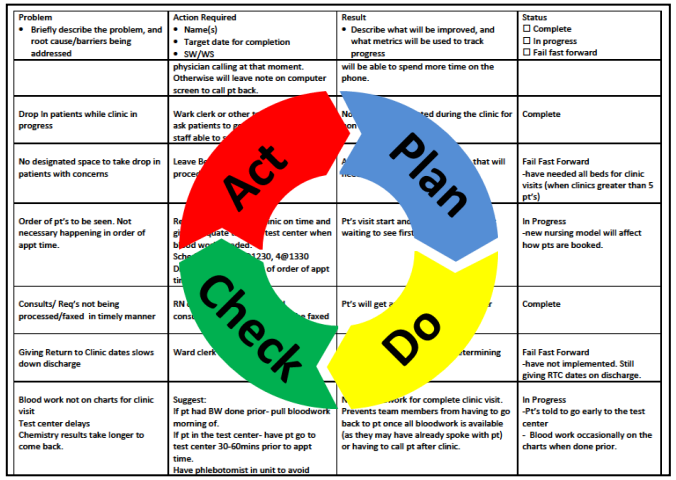
Vincent, Burnett and Carthey (2013)

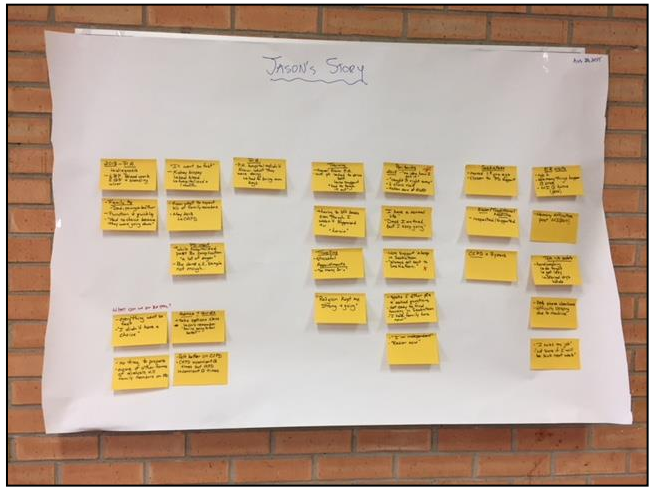
Patient and Family Partners

- Patient stories were mapped and shared with staff and physicians
- Improvements identified, action plans in place, guided research initiatives
- Progress reports shared at Patient and Family Advisory Council meetings
- Patient Advisors as members of the Clinical Improvement Team
- Patient experience surveys
- Sharing circles, honouring protocol, Elder guidance, storytelling and videos to capture voices

✓ **Patients and families provided strong motivation to incorporate research and clinical practice redesign into Kidney Health programs and services**

✓ **Made patient safety very personal**





"We are on the team"
"My traditions and beliefs are respected"
"Staff care about me"
"Doing PD is like having a hospital in my home"

- Leading Practice Award – Health Standards Organization and Accreditation Canada
- Most Effective Patient Engagement - Canadian Patient Safety Institute

Clinical Improvement Team

Team Member	Role
Tiffany Blair - Manager	Team Lead
Dr. Rod Stryker - Nephrologist	Team Member
Dr. Coco Sinclair – Interventional Radiologist	Team Member
Faye Prentice – Nurse Clinician	Team Member
Melissa Dayton – Nurse Clinician	Team Member
Deanna Phaneuf – Patient Educator	Team Member
Chantele Palmer – Patient Educator	Team Member
Patient Advisor	Team Member
Patient Advisor	Team Member
Dr. Bruce Berscheid – Board Member	Team Member
Dr. Paul Babyn – Physician Executive	Mentor
Jean Morrison – President and CEO SPH	Mentor
Petrina McGrath – Executive Director	Mentor

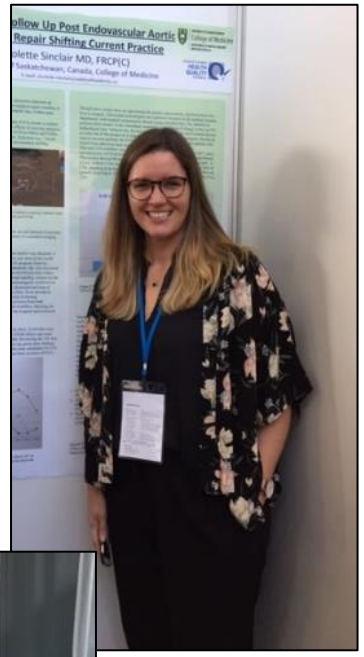
In partnership with the Canadian Patient Safety Institute, the Kidney Health team participated in national collaborative for measuring and monitoring of safety framework (MMSF)

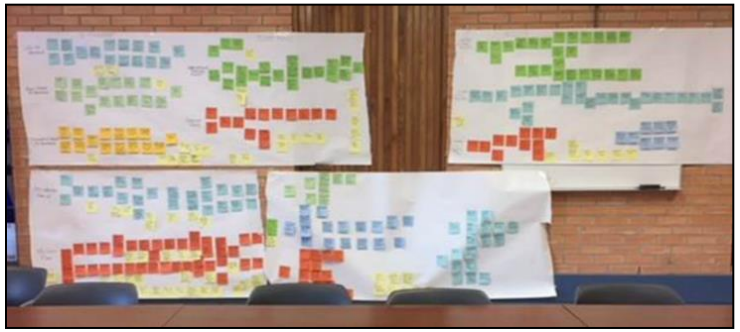
Levels of Patient and Family Engagement

- Individual – point of care
- Voice – survey
- Project – team member
- Dept – Patient Family Advisory Council, Ambassador
- Program – Patient Family Advisory Council

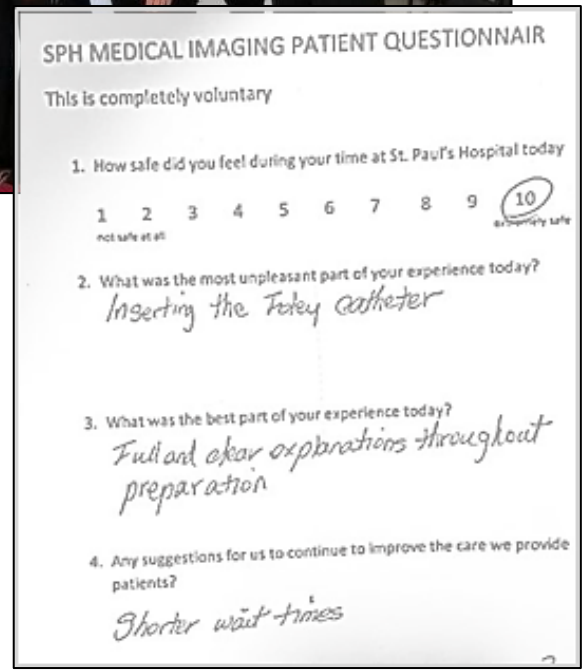
Shared decision-making is an integral *part* of Kidney Health

Clinical Improvement Team





Focus on improving sub optimal PD


SPH MEDICAL IMAGING PATIENT QUESTIONNAIR

This is completely voluntary

1. How safe did you feel during your time at St. Paul's Hospital today

1 2 3 4 5 6 7 8 9 (10)

not safe at all — completely safe

2. What was the most unpleasant part of your experience today?

Inserting the Foley catheter

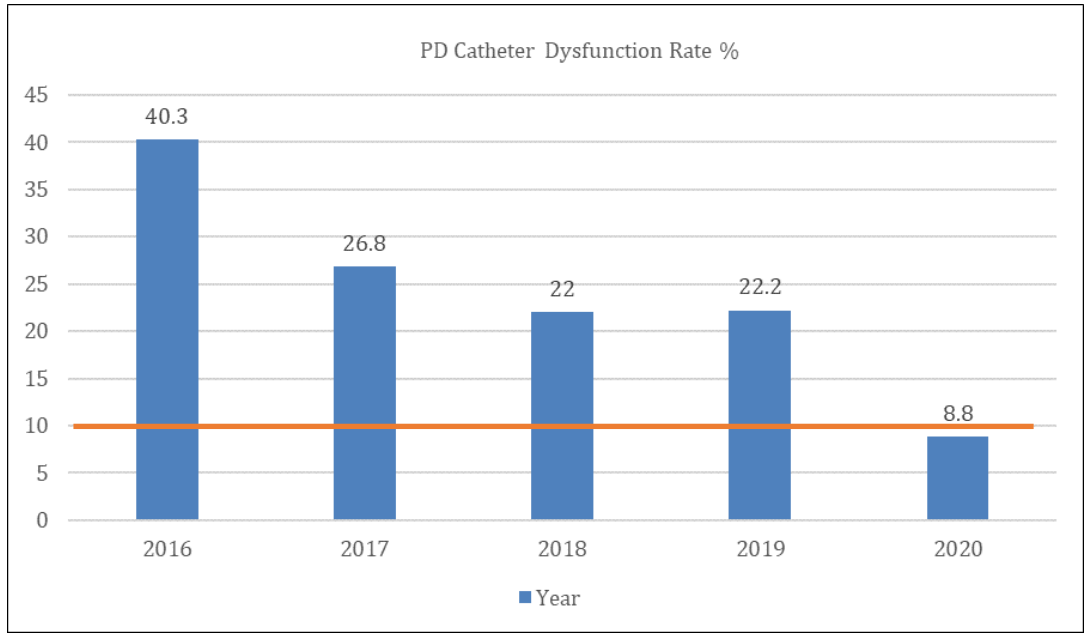
3. What was the best part of your experience today?

Full and clear explanations throughout preparation

4. Any suggestions for us to continue to improve the care we provide patients?

Shorter wait times

PD Catheter Insertion Outcomes Year to Year Comparison



Year		2016	2017	2018	2019	2020
Volume	# PD Patients with PD Catheter Insertions	62	71	50	54	57
Insertion Technique (%)	Interventional Radiology	12 (19.3%)	39 (55.6%)	34 (68.0%)	46 (85.2%)	51 (89.5%)
	Laparoscopic	15 (24.2%)	29 (40.3%)	15 (30.0%)	8 (14.8%)	6 (10.5%)
	Blind Surgical Insertion	35 (56.5%)	3 (4.2%)	1 (2.0%)	0 (0.0%)	0 (0.0%)
PD Dysfunction Outcomes						3 (5.3%)
						(66.7%)
						0 (0.0%)
						(33.3%)
						0 (0.0%)
						0 (0.0%)
						0 (0.0%)
						0 (0.0%)
						0 (0.0%)
						0 (0.0%)
						0 (0.0%)
						2 (3.5%)
						0 (0.0%)
						0 (0.0%)
						0 (0.0%)
						2 (100.0%)
						0 (0.0%)
						0 (0.0%)
	Catheter function	n/a	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	Peritonitis	n/a	1 (20.0%)	1 (50.0%)	0 (0.0%)	0 (0.0%)
	Exit/Tunnel Infection	n/a	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	Hernia/Leak	n/a	4 (80.0%)	1 (50.0%)	0 (0.0%)	0 (0.0%)
	TOTAL PD Failure Rate	25/62 40.3%	19/71 26.8%	11/50 22.0%	12/54 22.2%	5/57 8.8%
	Sub-optimal	6 (9.7%)	19 (26.4%)	10 (20.0%)	16 (29.6%)	22 (38.6%)
	* n/a – data not available					

Major IR PD technique changes that resulted in improvement:

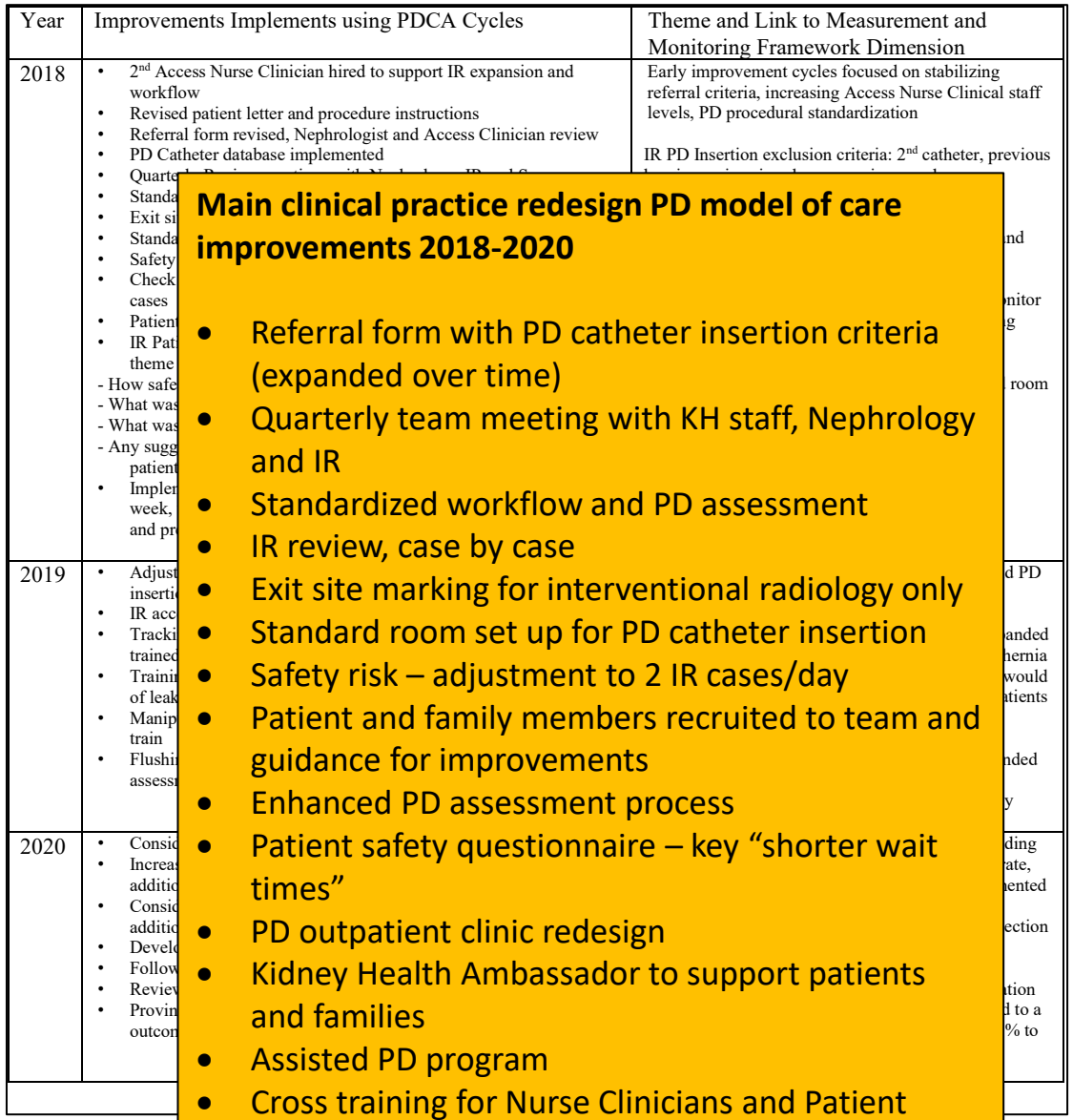
- Tunnel length = less cuff extrusion and infection
- 2 procedures/day max = focus on technique for the operator, decrease time pressure
- Discontinued need for foley catheter = no increase to primary failure and increase in patient satisfaction
- Case review = every failure was tracked and evaluated
- MMSF collaborative = robust data and evaluation

Improvements Achieved by Year

Using the Model for Improvement Plan-Do-Check-Act cycle the clinical improvement team implemented > 72 process improvements from 2018 to 2020 to improve patient care in complement mapping the patient and family experience over time, aligned with MMSF dimensions

- 31.5% reduction in PD catheter failure rate
- 72 patients avoided need for hemodialysis lines, and were able to remain at home with PD from 2017-2020
- $$ cost saving, and benefit to patient & family

Improvement efforts now focused on sub-optimal: poor drainage and flow, manipulation, leaks, adequacy

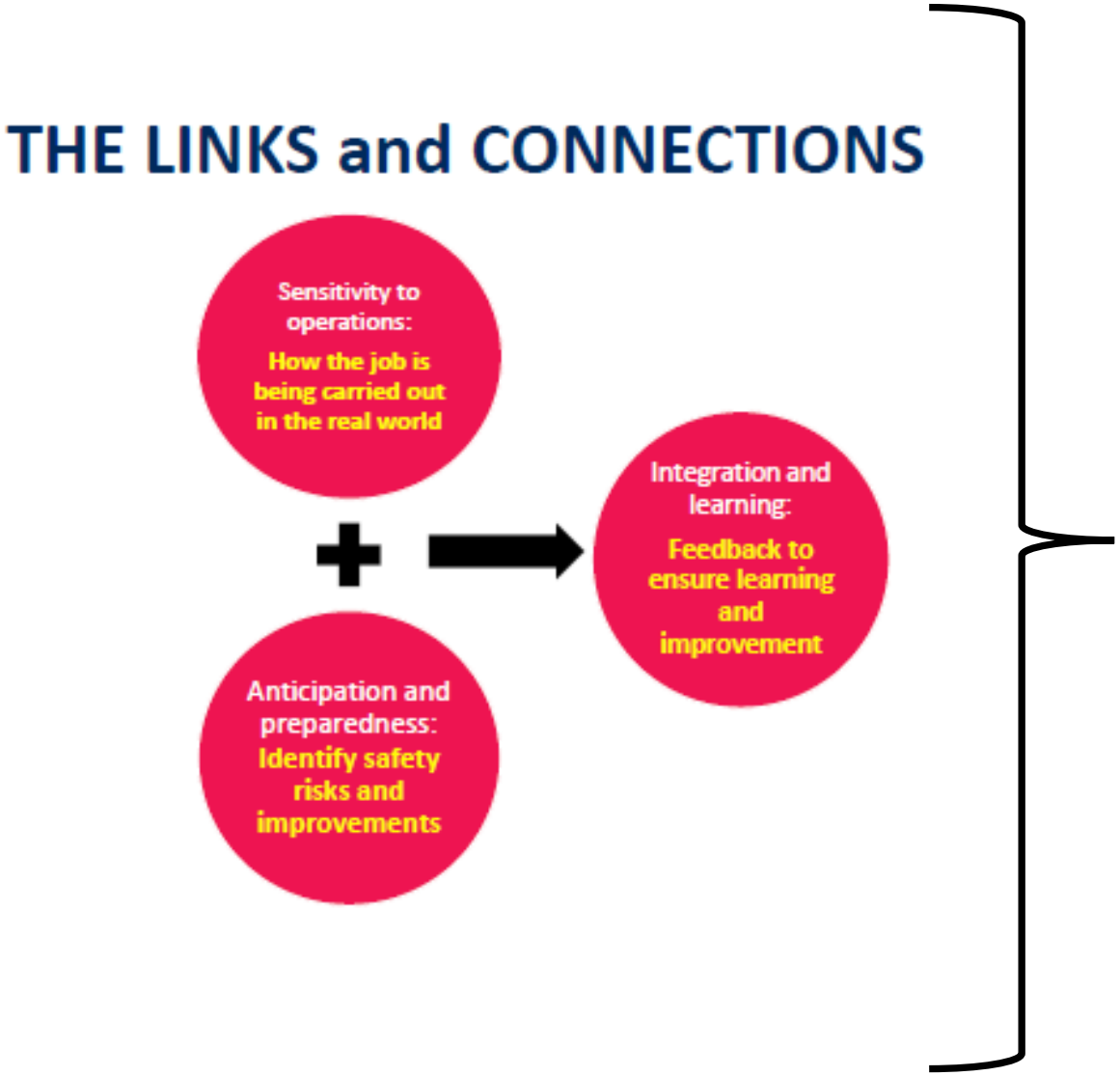


Year	Improvements Implements using PDCA Cycles	Theme and Link to Measurement and Monitoring Framework Dimension
2018	• 2nd Access Nurse Clinician hired to support IR expansion and workflow • Revised patient letter and procedure instructions • Referral form revised, Nephrologist and Access Clinician review • PD Catheter database implemented • Quarte • Standa • Exit si • Standa • Safety • Check cases • Patient • IR Pat theme - How safe - What was - What was - Any sugg patient • Implen week, and pr	Early improvement cycles focused on stabilizing referral criteria, increasing Access Nurse Clinical staff levels, PD procedural standardization IR PD Insertion exclusion criteria: 2nd catheter, previous
2019	• Adjust inserti • IR acc • Tracki trained • Trainir of leak • Manip train • Flushi assess	
2020	• Consid • Increa additio • Consid additio • Develo • Follow • Reviev • Provin outcon	

Main clinical practice redesign PD model of care improvements 2018-2020

- Referral form with PD catheter insertion criteria (expanded over time)
- Quarterly team meeting with KH staff, Nephrology and IR
- Standardized workflow and PD assessment
- IR review, case by case
- Exit site marking for interventional radiology only
- Standard room set up for PD catheter insertion
- Safety risk – adjustment to 2 IR cases/day
- Patient and family members recruited to team and guidance for improvements
- Enhanced PD assessment process
- Patient safety questionnaire – key “shorter wait times”
- PD outpatient clinic redesign
- Kidney Health Ambassador to support patients and families
- Assisted PD program
- Cross training for Nurse Clinicians and Patient Educators

Measuring and Monitoring of Safety Framework



Metrics Dashboard

Past Harm

- Prospective record of 1º and 2º PD catheter failure
- Historical data of kidney failure
- Extra tests due to complications
- Death rate - transfer to hemodialysis
- Peritonitis rate
- Exit infection rate

Reliability

- Standard patient education
- Standard order sets (pre / intra / post procedure)
- PD assessment / modality choice
- Referral process standardized
- Exit site marking
- Standard clinic visit with follow-up

Sensitivity to Operations

- Daily huddle in PD
- Exit site teach
- Follow-up appointments / care plan

Anticipation and Preparedness

- Daily team huddles
- Discharge plan / teaching
- Quarterly meetings
- Access referral
- Clinical feedback loop

Integration and Learning

- Quarterly meetings - full team
- Monthly clinical team meetings
- Process mapping and improvement
- Report to Senior Leadership and Board

Measuring and Monitoring of Safety Framework

The measurement and monitoring of safety in healthcare is an ongoing challenge and measuring safety is not solely about measuring harm

- Participation in the MMSF national collaborative enabled the Kidney Health clinical improvement team to address a number of quality and safety barriers that prevent patients from successfully performing home PD
- The Clinical Improvement Team translated real time data so that it is useful to take action, stimulate gap analysis for process improvement, identify strengths and weaknesses, promote a culture of safety and continuous improvement, and foster a strong research-based environment
- Quality and safety principles were embedded into daily practice which showed a positive shift in safety culture, and mapping the patient and family experiences highlighted opportunities for Kidney Health programs and services
- The development and standardization of the PD catheter outcomes database, definition of PD catheter failure rate, MMSF reporting and metrics cascade, and clinical process improvement tracking was critical to the success of this initiative, and brought rigger to clinical practice

Interventional Radiology

Who Am I?

- One of 3 interventional radiologist in hospital
- Limited exposure to PD in fellowship (I saw one)
- Attended a PD Catheter Insertion course May 2016
- Inserted first PD catheter September 2016
- Member of MMSF Team

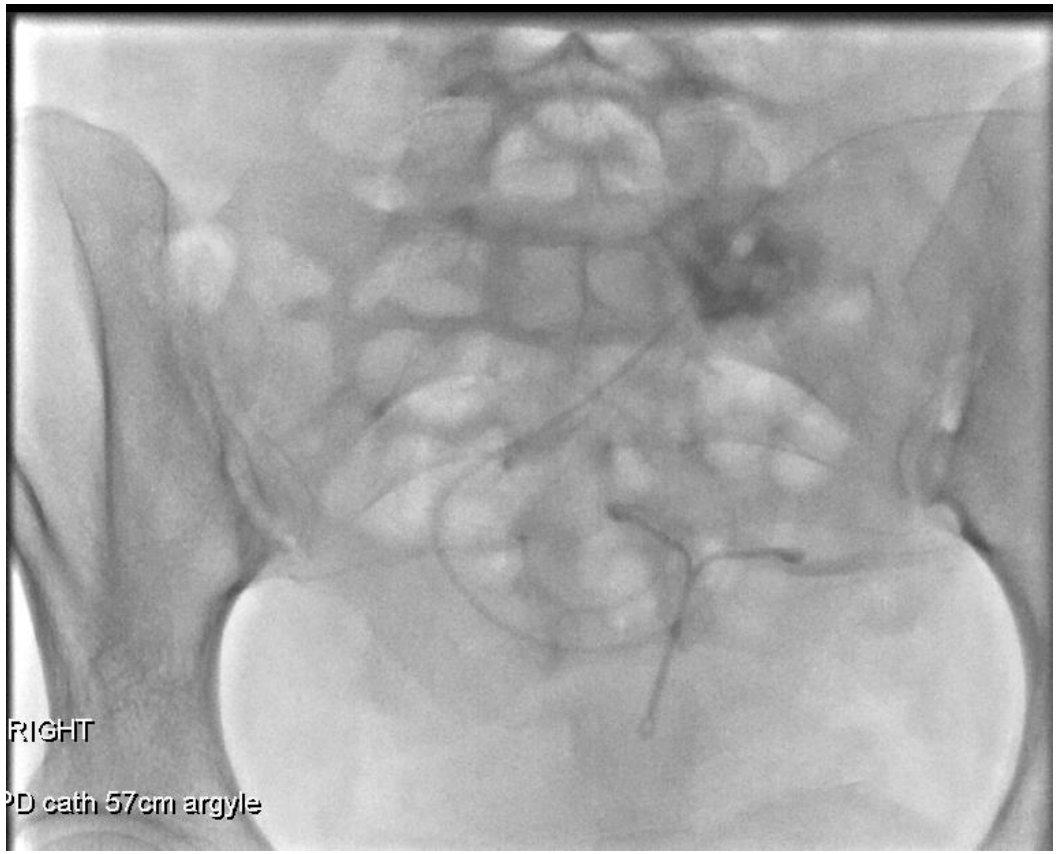
How I do it

- Fluoroscopic and ultrasound guided
- Use dual cuff, curl tip catheter, 57 or 62 cm
- Bowel prep, IV antibiotics, blood work
- Local anesthesia and conscious sedation
- 1-2 hours recovery
- PD nurse in room, dialysis nurse recovers

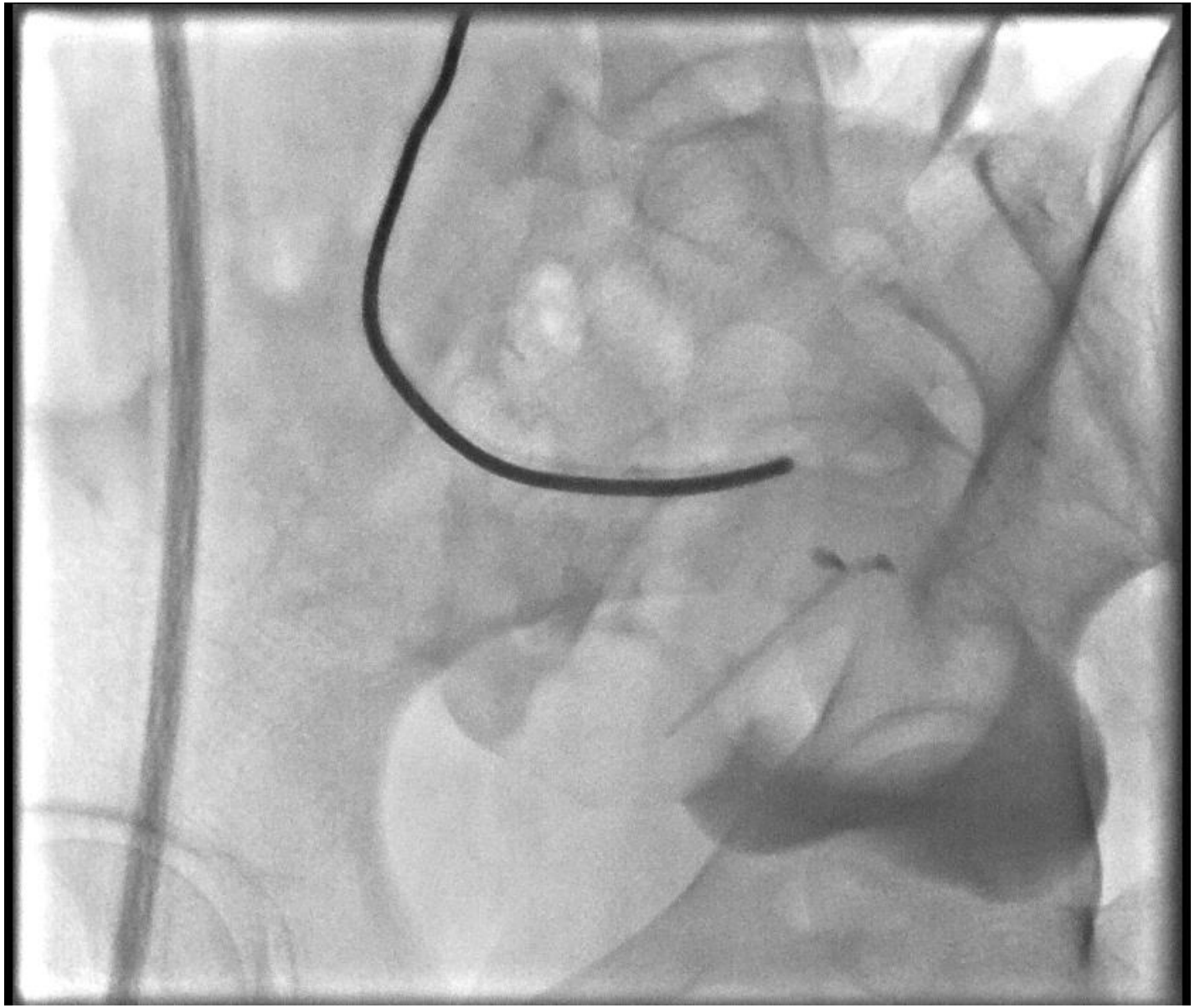
Case #1

29 year old female patient, declining renal function, chooses PD


RIGHT

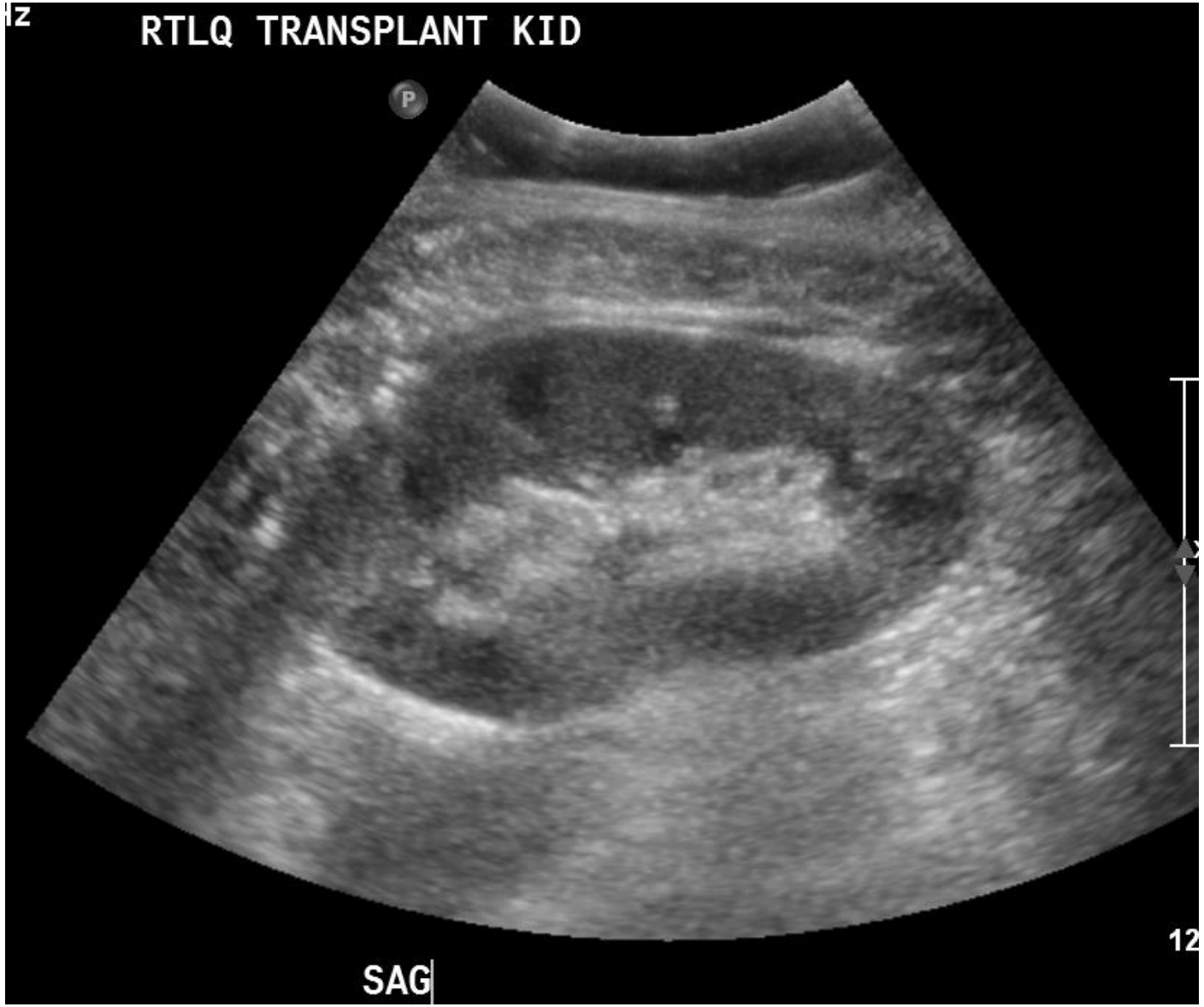

RIGHT
PD cath 57cm argyle

1 year later PD catheter not draining well



1.5 years later…

- PD catheter was removed
- due to successful transplant!

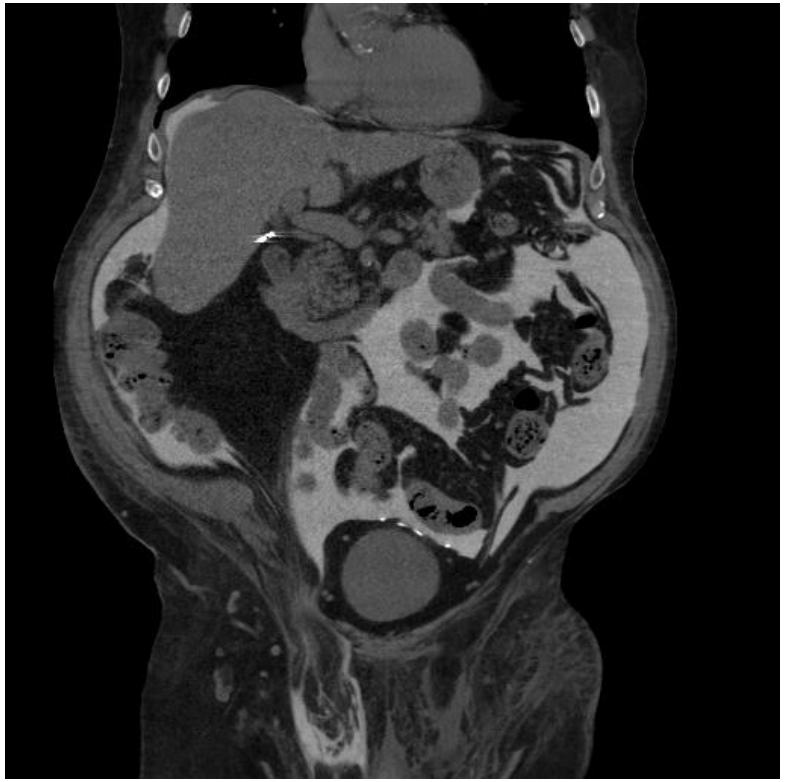


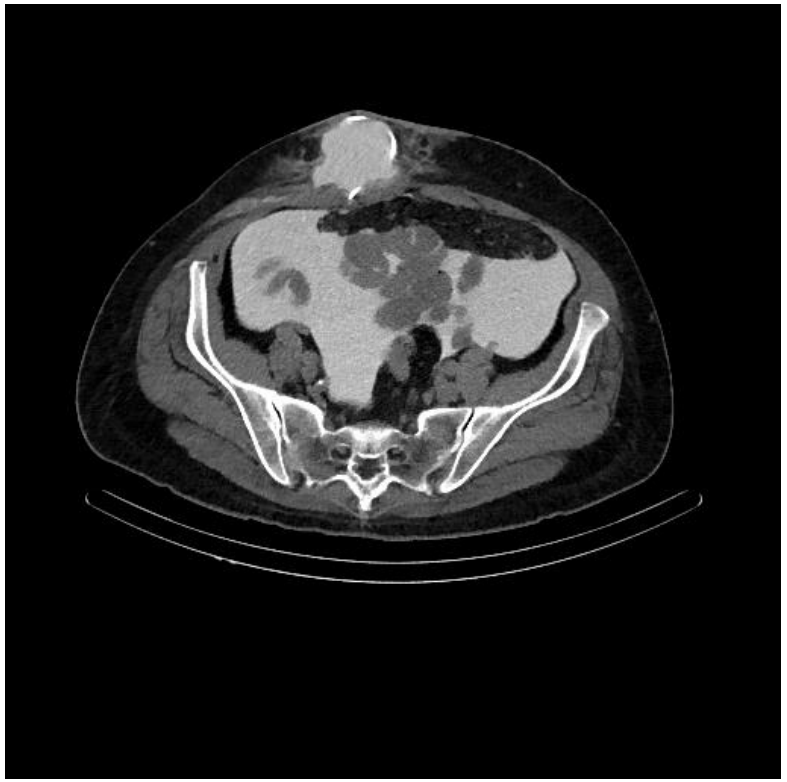
Case #2

- 63 yo male, on HD, started having allergic reactions related to HD procedure
- not a surgical candidate
  - Severe CHF
  - Overweight

CT Peritonography

- Intraperitoneal contrast
- Identify hernias and leaks





Results

Level	The Biggest Changes due to MMSF Collaborative
Board and Director Level	Purposeful patient engagement
	Pause – safety in the moment
	Thinking beyond the focus on past events
	Broaden the conversation – presence of safety and absence of harm
	Anchor with daily operational context
	Team engagement and ownership of continuous improvement
Team Level	Purposeful patient engagement – what can we do to make you successful
	See things we are doing proactively not just reacting to events
	Importance of clinical improvement team (removing barriers to change together)
	Difference – reliability through process mapping
	Ensuring patient is prepared at each step, patient feels safe, and respected
	Team taking ownership – broader than team within department
	Spread continuous improvement process to other departments
	Application to a concrete problem enhances learning

Participation in the MMSF Collaborative resulted in a strong clinical improvement team approach, with a collective goal of embedding patient safety into every point of patient care.

Our First Nations and Métis patient partner shared this quote:

"It is important that this work be brought out to the reserves, to let patients know that there is help, that people care about you and your safety. People like me can promote PD, and it's important that you listen to our stories, good and bad, to improve our lives and health"

This patient now serves a member of the Kidney Health Patient Advisory Council and delivers education sessions on kidney health friendly lifestyles in the community

The patient voice speaks to the need to further explore culturally sensitive models of care, and to enhance PD uptake in vulnerable populations

Discussion

- This local initiative to enhance patient safety and process improvement, in combination with targeted strategic efforts to improve PD catheter failure rates may not be generalizable to other programs
- Need to continue to utilize MMSF to drive improvements and break down silos, but ongoing commitment and training are unknown
- A broader limitation is the variation and lack of consensus internationally in what experts and clinicians consider an acceptable rate of PD catheter failure rateand benchmark targets

A key element in MMSF is to focus on learning from failure and potential failure rather than success and to implement process improvements to create a more reliable, safer model of care

The MMSF dimensions were combined to better represent the links to clinical process improvement cycles:

- **Sensitivity to Operations**: How the job is being carried out in the real world, *with*
- **Anticipation and Preparedness**: Identify safety risks and improvements, *leads to*
- **Integration and Learning**: Feedback to ensure learning and drive improvement

The definitions of primary and secondary failure held the team to criteria that other KH programs saw as too restrictive, including those participating in PD registries

We achieved PD catheter failure rate of 8.8% that was less than the national target of 10%

What this initiative adds

The application of the MMSF resulted in better interdisciplinary teamwork and a significant improvement of peritoneal dialysis catheter function and patient outcomes

Inclusion of patient partners was critical to the success of this research, and in promoting a culture of safety

Practical definitions of peritoneal dialysis catheter dysfunction and MMSF metrics enabled ongoing performance monitoring and operational planning

In addition, the clinical improvement team approach is critical to success

The PD catheter database and rigorous data definitions and collection at point care has enabled research, quality of care reviews, and real time assessment of gaps in care

Questions