

**Ms Bavani Deyvi Periasamy**  
**Clinic B1A**

## Mission Statement

To reduce the percentage of missed X-ray orders in CCOE for Orthopaedic Repeat Visit Patients from 13% to 0% in 6 months in Clinic B1A

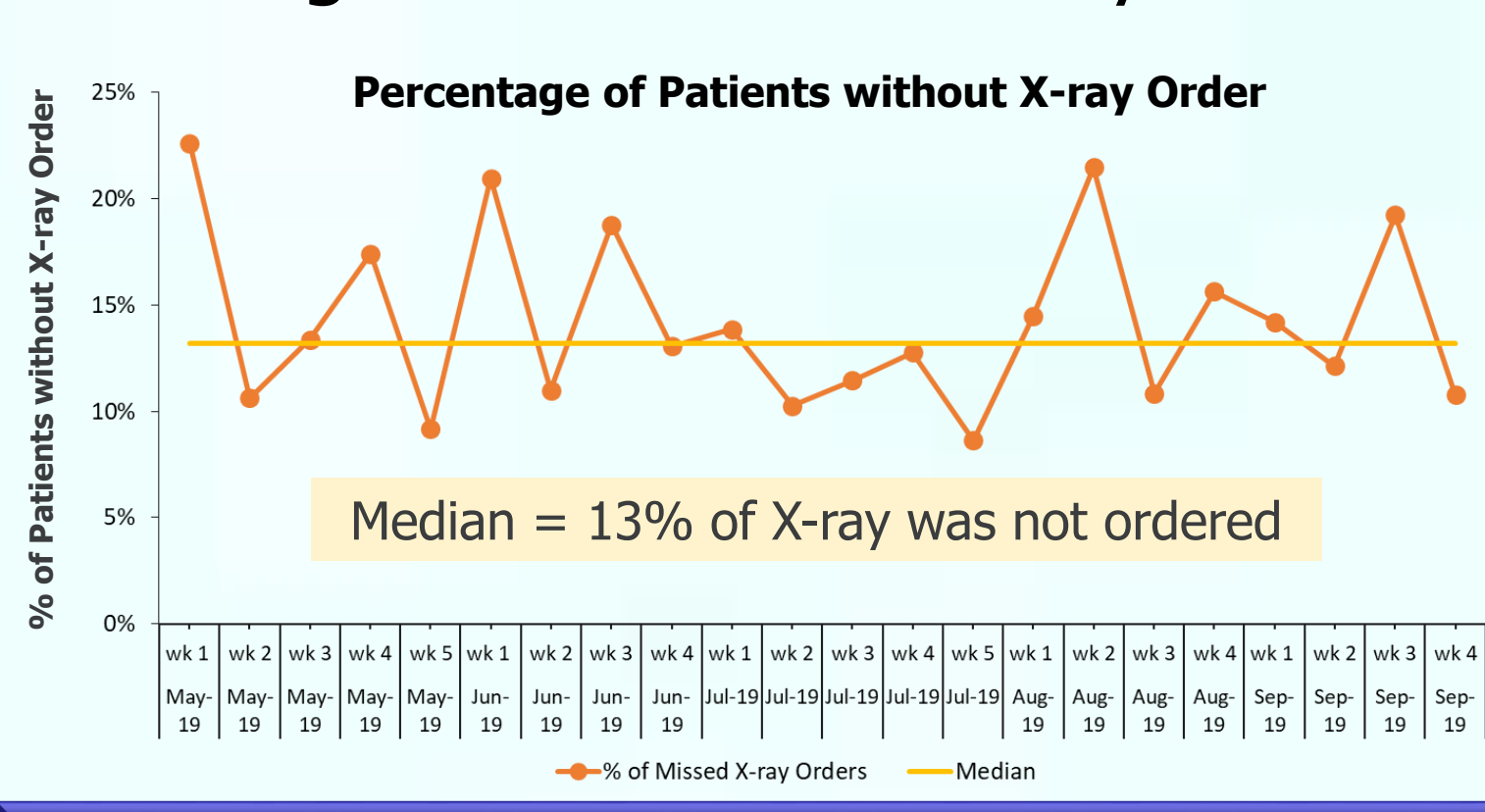
## Team Members

	Name	Designation	Department
<b>Team Leader</b>	Ms Bavani Deyvi Periasamy	Senior Nurse Manager	Clinic B1A
<b>Team Members</b>	Adj A/Prof Lee Keng Thiam	Head & Senior Consultant	Orthopaedic Surgery
	Mr Surrender Naini Reddy	Head & Principal Radiographer	Radiography Service
	Mr Jeffrey Lai Siu Piew	Assistant Nurse Clinician	Clinic B1A
	Chan Man Nok	Senior Staff Nurse	Clinic B1A
	Ms Liu Tingting	Senior Staff Nurse	Clinic B1A
	Mr Chong Chun Meng	Principal Radiographer	Clinic B1A
	Ms Ng Guat Keow	Assistant Supervisor	Clinic B1A
<b>Mentors</b>	Ms Goh Lee Lee & Ms Sui Huangbo		

## Evidence for a Problem Worth Solving

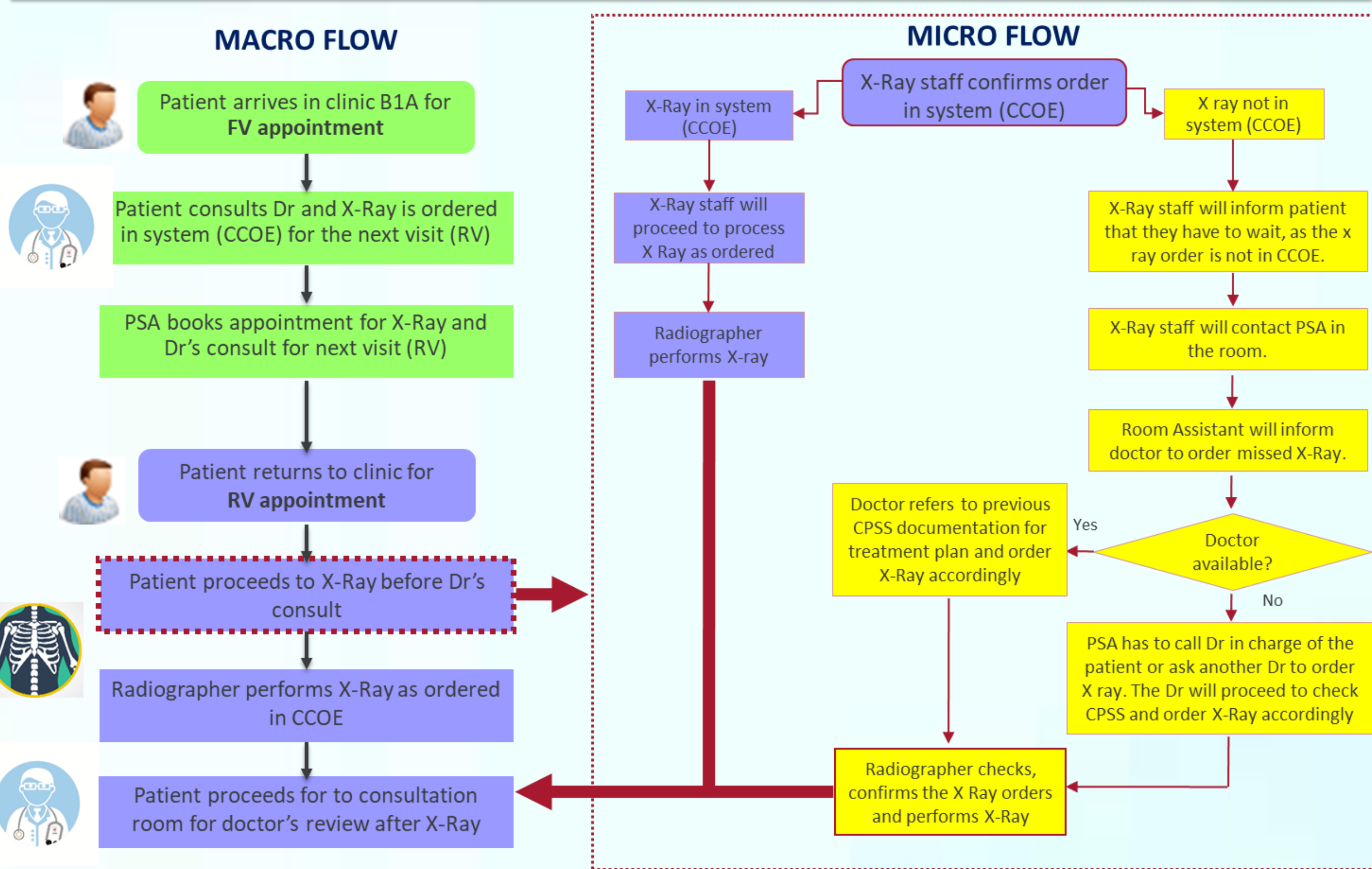
During a patient's First Visit appointment in the clinic, doctors may need to order an X-ray for the subsequent visits to determine treatment plan for the patients. In a duration of 6 months, the team found a total number of 1,796 Repeat Visit patients' X-rays were not ordered by doctors during their previous visits in the clinic.

When these orders are not ordered in the Aurora, patient's consultation is delayed due to the missed X-ray orders and resulted in a delay in diagnosing and rendering treatment in a timely manner for the patients.

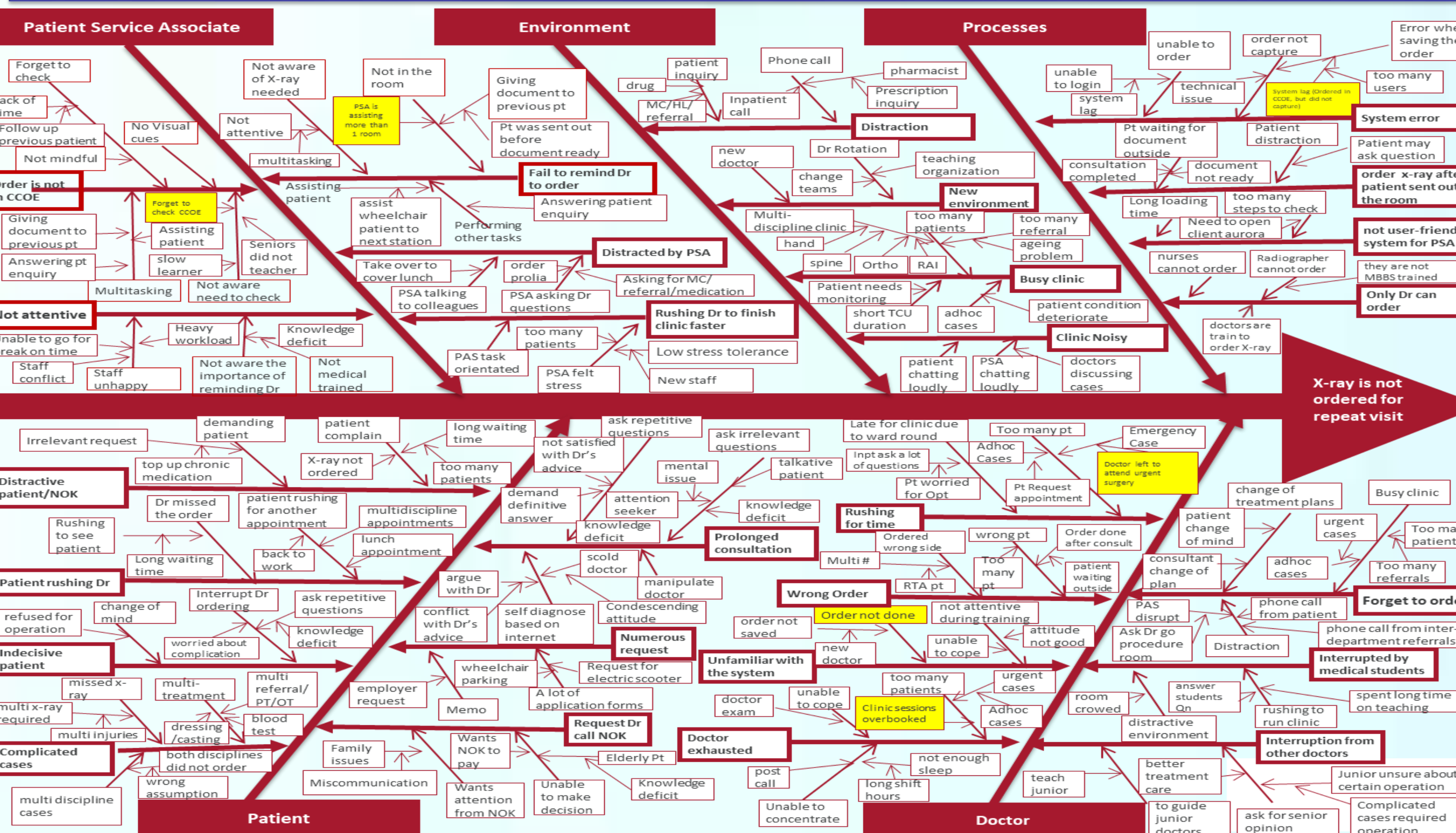


Month	Week	No. of Patients Without X-ray Order	No. of Patients who Required X-ray Orders
May-19	wk 1	45	199
May-19	wk 2	61	524
May-19	wk 3	64	479
May-19	wk 4	75	431
May-19	wk 5	50	545
Jun-19	wk 1	87	415
Jun-19	wk 2	56	599
Jun-19	wk 3	98	522
Jun-19	wk 4	69	528
Jul-19	wk 1	79	570
Jul-19	wk 2	48	468
Jul-19	wk 3	57	498
Jul-19	wk 4	67	525
Jul-19	wk 5	30	248
Aug-19	wk 1	89	614
Aug-19	wk 2	96	447
Aug-19	wk 3	56	516
Aug-19	wk 4	80	512
Sep-19	wk 1	76	535
Sep-19	wk 2	64	528
Sep-19	wk 3	96	499
Sep-19	wk 4	65	603

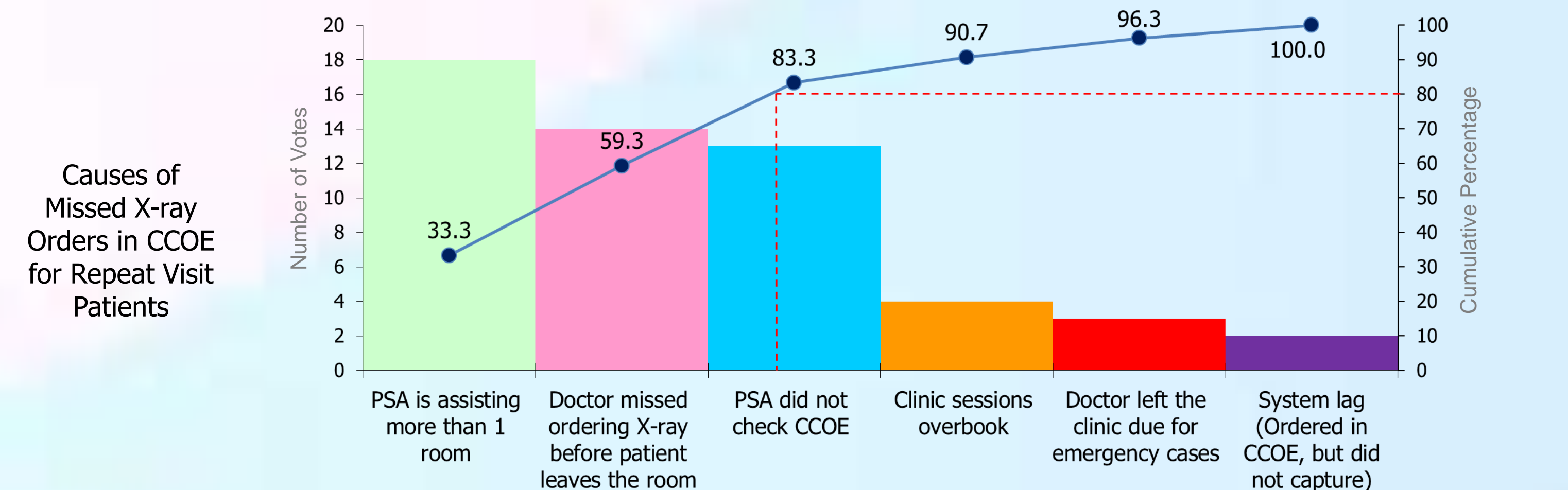
## Flow Chart of Process



## Cause and Effect Diagram



## Pareto Chart

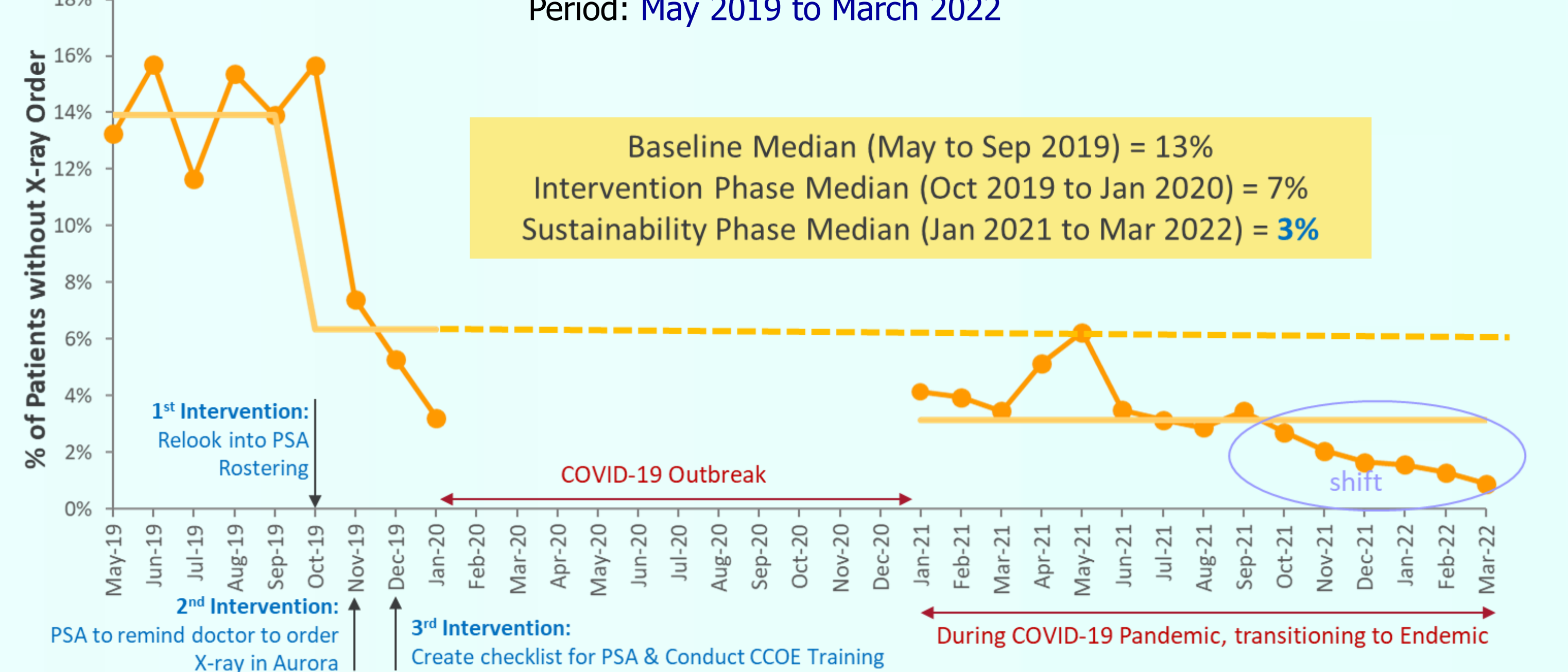


## Implementation

Root Cause	Intervention	Implementation Date
<b>Cause 1:</b> PSA is assisting more than 1 room	Relook into PSA Rostering	Oct 2019 (Week 1)
<b>Cause 2:</b> Doctor missed ordering X-ray before patient leaves the room	PSA to remind doctor to order X-ray in CCOE	Nov 2019 (Week 1)
<b>Cause 3:</b> PSA did not check CCOE	Create checklist for PSA and Conduct CCOE Training for PSA	Dec 2019 (Week 1)

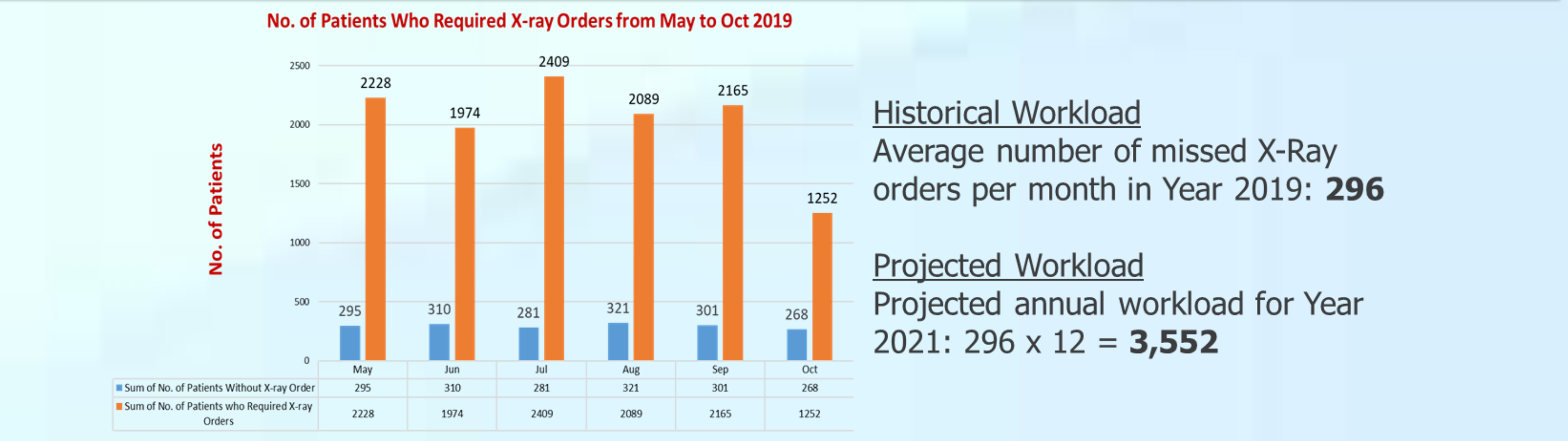
## Results

### Percentage of Patients without X-ray Order (Monthly Runchart)



	Baseline Data				Intervention Phase							Sustainability Phase																									
Month	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22		
No. of Patients Without X-ray Order	295	310	281	321	301	288	155	100	67	63	56	60	78	26	39	48	47	55	35	32	27	17	19	15	15	16	15	16	15	15	14	14	15	15	15	15	
No. of Patients who Required X-ray Orders	2228	1974	2409	2089	2165	1839	2093	1896	2077	1523	1421	1734	1516	417	1114	1525	1639	1588	1291	1551	1630	1091	1464	1689	1689	1689	1689	1689	1689	1689	1689	1689	1689	1689	1689	1689	1689

## Cost Avoidance & Cost Savings



	Radiographer Cost Avoidance	Doctor Cost Savings
<b>Manpower FTE</b>	Average duration to review CPSS and inform patient of missing X-Ray order: <b>2mins</b> Total Radiographer FTE avoided = [(3,552 x 2mins / 60mins) / 1,940h*] = <b>0.06 FTE</b>	Average duration to review CPSS and re-order X-Ray: <b>5mins</b> Total Doctor (Medical Officer) FTE saved = [(3,552 x 5mins / 60mins) / 1,940h*] = <b>0.15 FTE</b>
<b>Manpower Costs</b>	Radiographer costs avoided: 0.06 FTE x \$100,000^ = <b>\$6,000</b>	Medical Officer costs saved: 0.15 FTE x \$120,000^ = <b>\$18,000</b>

## Lessons Learnt

1. Get the Buy-In and work with multi-team stakeholders
2. Multi-team effort
3. Practice No Blame Culture
4. Be a Motivator to keep the project alive and going
5. Avoid Finger Pointing

## Strategies to Sustain

1. Ensure roster is well planned at all times
2. Train nurses and lead PSAs to monitor missed X-Rays
3. Flag out if any team members refused to corporate (Nurse and Lead PSAs to be my eyes and ears)