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Where are we with DERS and early learning from CQI reporting

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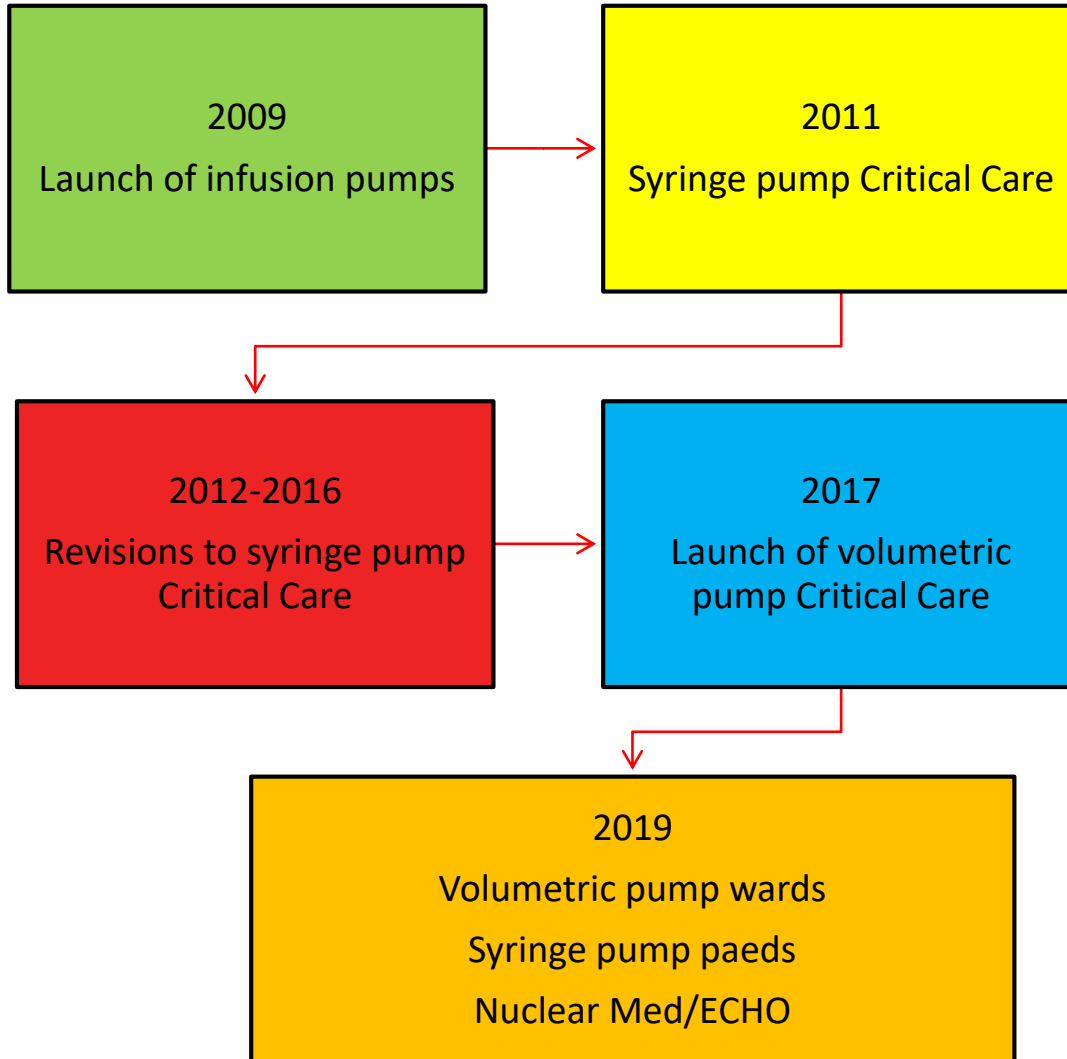
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Introduction

- DERS – launch to now
- How to plan and launch a drug library
- CQI reporting and learning



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Drug libraries for the future

- Cath labs and Theatres – high rate volume pumps
- Paediatrics <40kg



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Launching a drug library

1.

- Proposal and agreement

2.

- Develop library

3.

- Validation and release

4.

- Training nurses and medical staff



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Potential barriers

'We have always done it this way (ml/hr)'

'De-skilling of nursing staff'

'It's quicker this way (ml/hr)'

'Hard to standardise due to differences in practices'





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CQI data

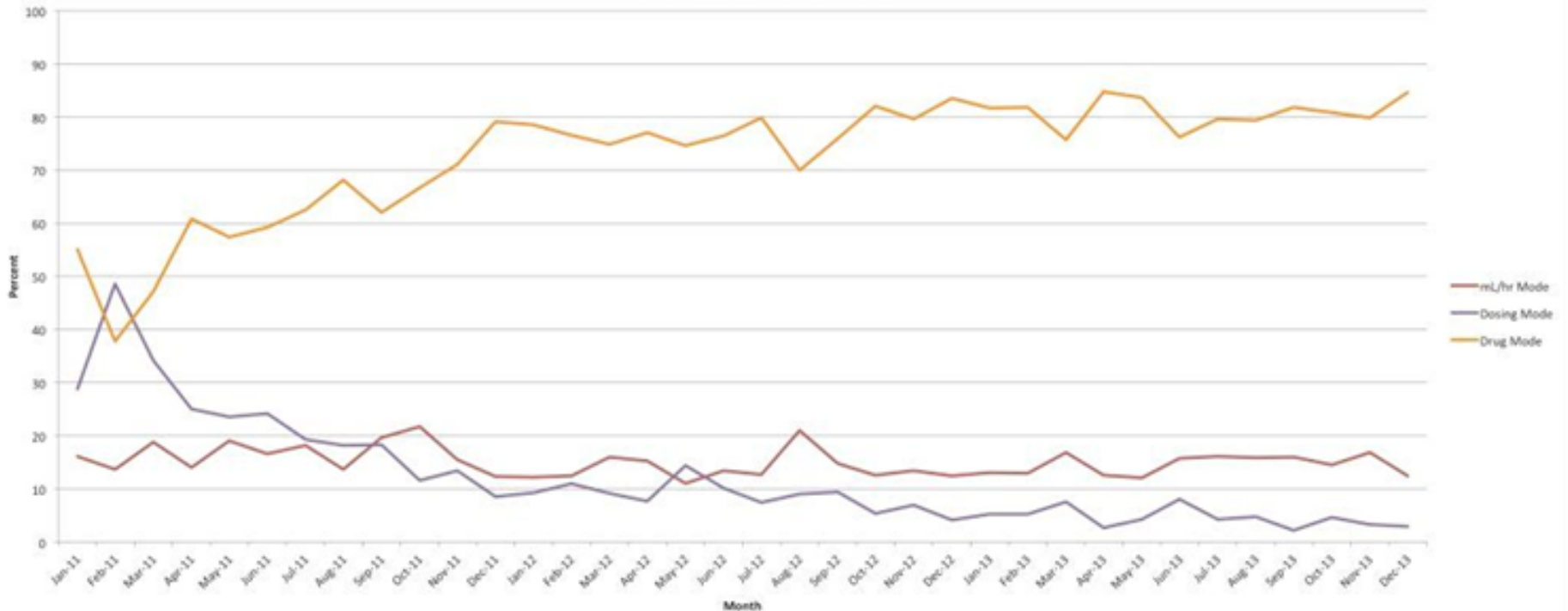
- Number of infusions over a time period
- Drug, dosing only or ml/hr function
- Alerts
- Uptake of using smart technology
- Factor rate set $>$ hard limit



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Compliance with DERS

Infusion Pump Mode in Percent

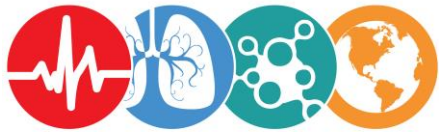




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Examples of near misses using CQI

- Furosemide - ml/hr versus mg/hr
- Amiodarone – user attempted to run at 900mg/hr instead of 37.5mg/hr
- Heparin – 20,000 units/hr was programmed but hard limit of 3000 units/hr



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Limit events

	Total events	Total soft max limits	Total hard max limits	Total soft min limits
Jan-11	45	19	3	21
Feb-11	38	10	4	24
Mar-11	68	24	9	35
Apr-11	64	34	13	19
May-11	82	18	6	58
Jun-11	106	41	20	42
Jul-11	119	41	17	61
Aug-11	171	72	7	92
Sep-11	258	111	16	131
Oct-11	116	61	16	39
Nov-11	218	102	19	97
Dec-11	207	106	9	92



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Factor rate set > hard limit

	Factor rate set > hard limit						
	Total	>1-1.5	>1.5-2	>2-2.5	>2.5-5	>5-10	>10-50
Inotropes / vasopressors	78	21	32	4	11	6	4
Anticoagulants	54	23	5	3	11	5	7
Sedatives	13	7	3	1	2		
Cardiology drugs	209	148	33	5	11	7	5
Others	5	4			1		
Total	360	203	73	13	37	18	16

Total = 5210 (2%) alerts.

Hard limit events = 457 (8.8%)

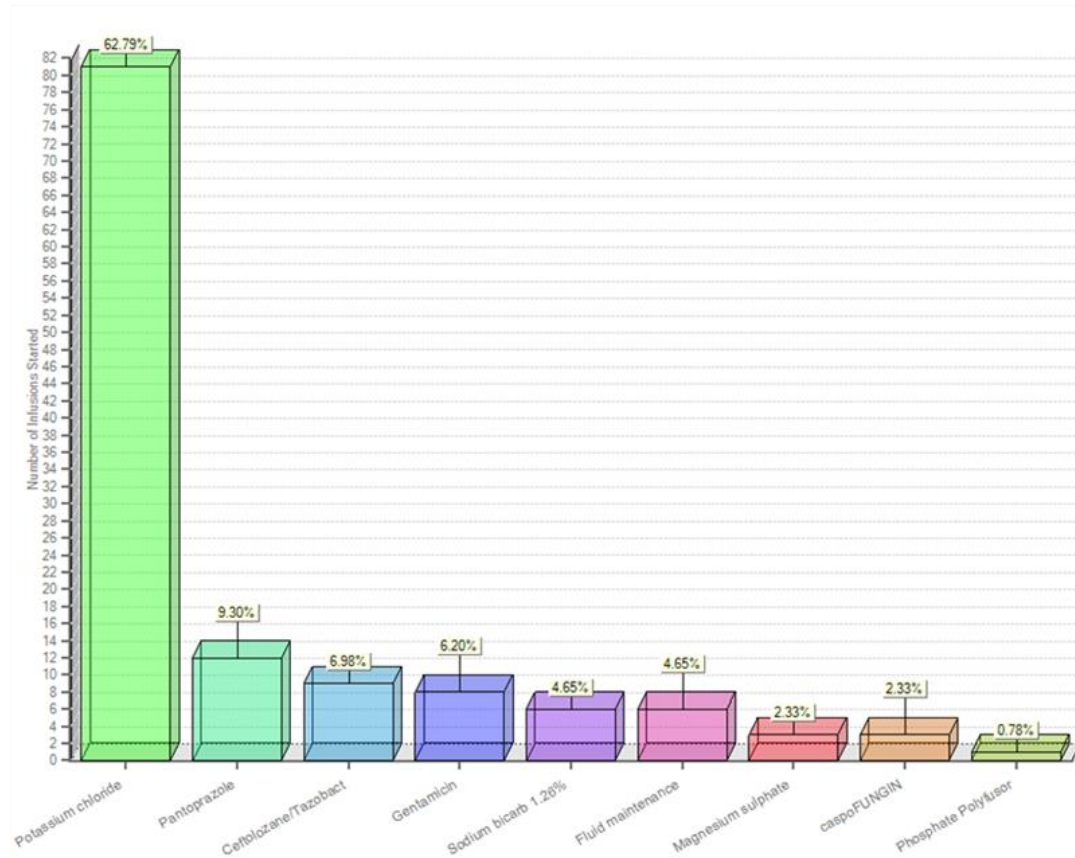
Of these 374 (82%) were re-programmed by the user

86 (23%) involved setting a rate >2x the hard limit.



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CQI data

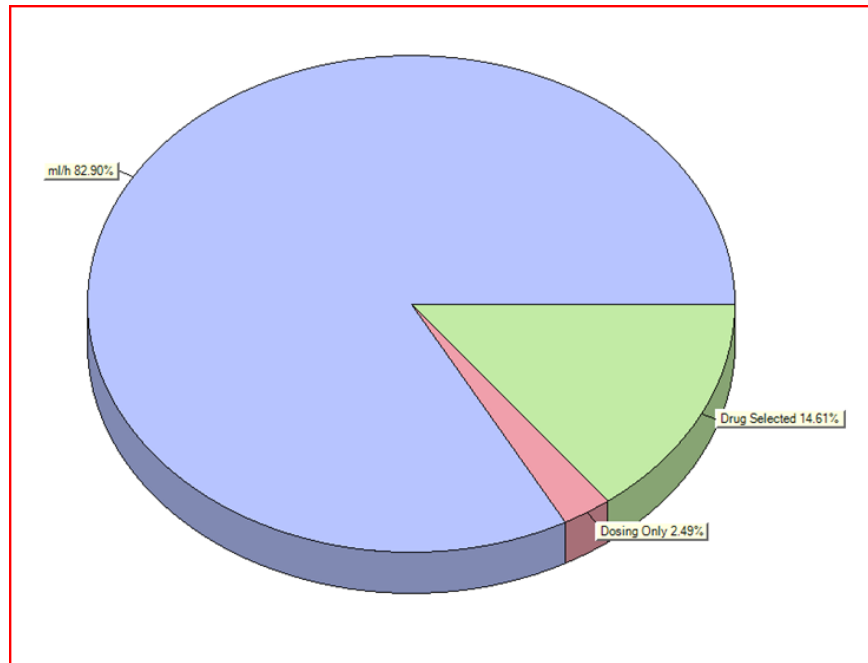




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CQI

Dose Rate Above Maximum	10/07/2019	03:23:57	1.Adult WARD	4700-21593	GP	Potassium chloride	20 mmol/100 ml	101 ml/h	100 ml/h	Hard	1
Infusion Started	10/07/2019	03:24:11	1.Adult WARD	4700-21593	GP	Potassium chloride	20 mmol/100 ml	100 ml/h			
Dose Rate Above Maximum	17/07/2019	02:58:42	1.Adult WARD	4700-21586	GP	Potassium chloride	20 mmol/100 ml	200 ml/h	100 ml/h	Hard	1
Titration Cancelled	17/07/2019	02:58:50	1.Adult WARD	4700-21586	GP	Potassium chloride	20 mmol/100 ml				





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Learning after one year

- The use of the smart software increased and averaged 80% after one year.
- Error rate was 1 in 50 infusions set up and 1 hard limit in 550 infusions.
- As 82% of the hard limits were reprogrammed, indicating “true errors” recognized by the user.
- 23% of infusion rate errors involved rates at least 2 times the hard max limit.



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Learning from CQI

- Refinement of safety limits
 - Clinically important
 - Minimising meaningless soft limits
- Expansion of drug library
- Training and greater awareness of DERS
- Clinically significant dosing errors intercepted



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Learning from CQI

Errors prevented
by DERS

- Wrong standard concentration
- Infusion rates

Human error –
cannot be
prevented by DERS

- Weight of patient
- Discrepancy between systems



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Any questions

