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# TRUEVUE ANALYTICS— Data Driven CRRT

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“ It is no exaggeration to say that the composition of the blood is determined not by what the mouth ingests but by what the kidneys keep; they are the master chemists of our internal environment. ”

— Homer William Smith



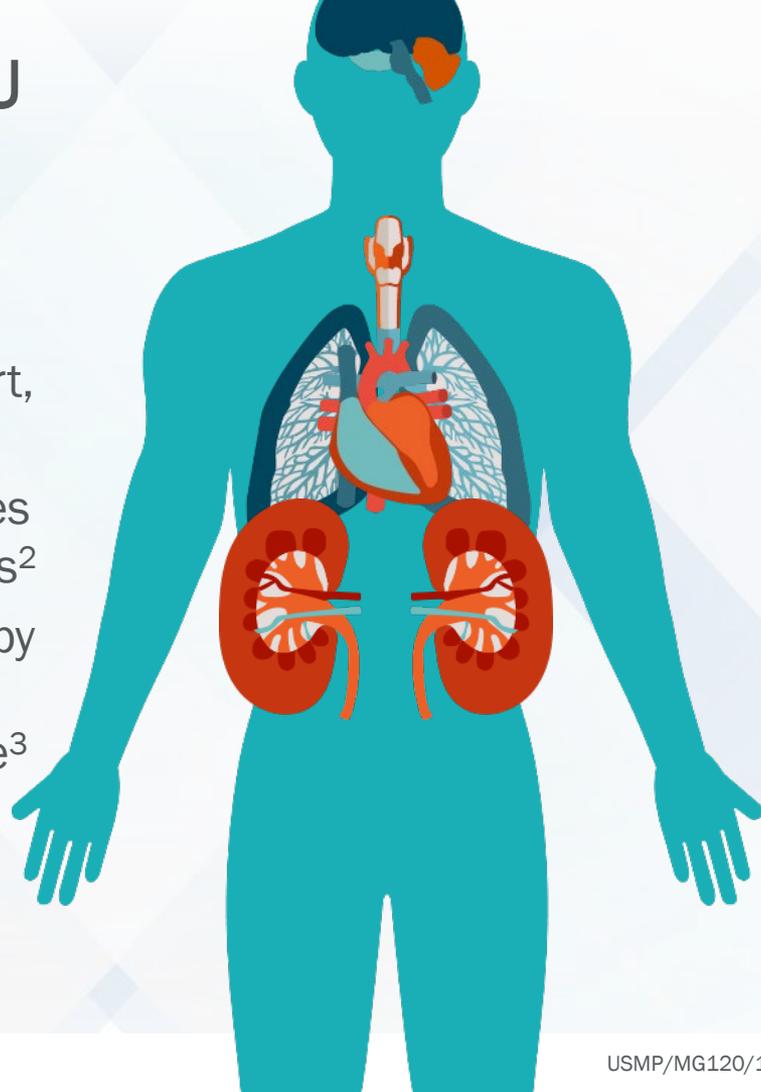
# Learning Objectives

Explore use of data to optimize your CRRT program

# Managing Fluids in the ICU

## AKI and the use of CRRT

- Acute kidney injury (AKI) may impact other organs, such as the brain, heart, and lungs<sup>1</sup>
- Disturbances in fluids and electrolytes are a common challenge in ICU cases<sup>2</sup>
- Continuous renal replacement therapy (CRRT) delivers continuous 24-hour treatment to restore balance<sup>3</sup>
- CRRT's gentle removal of fluids and solutes promotes hemodynamic stability<sup>4</sup>



# When to Use Which Therapy

## Intermittent Hemodialysis (IHD)

- Patient is stable and capable of tolerating rapid removal<sup>1,2</sup>
- Short duration, 3-4 hours every 48 hours<sup>1</sup>
- Rapid solute and volume removal<sup>1</sup>
- Increased risk of systemic hypotension and hemodynamic instability<sup>1,2</sup>

## Continuous Renal Replacement Therapy (CRRT)

- Preferred modality for managing hemodynamically unstable patients<sup>3</sup>
- AKI patients less stable and unable to tolerate IHD therapy<sup>1,2</sup>
- Performed continuously over 24-hour period with gradual removal of solutes and fluids<sup>1</sup>
- Hemodynamic tolerance improved due to gradual removals<sup>1,2</sup>



# Key CRRT Challenges

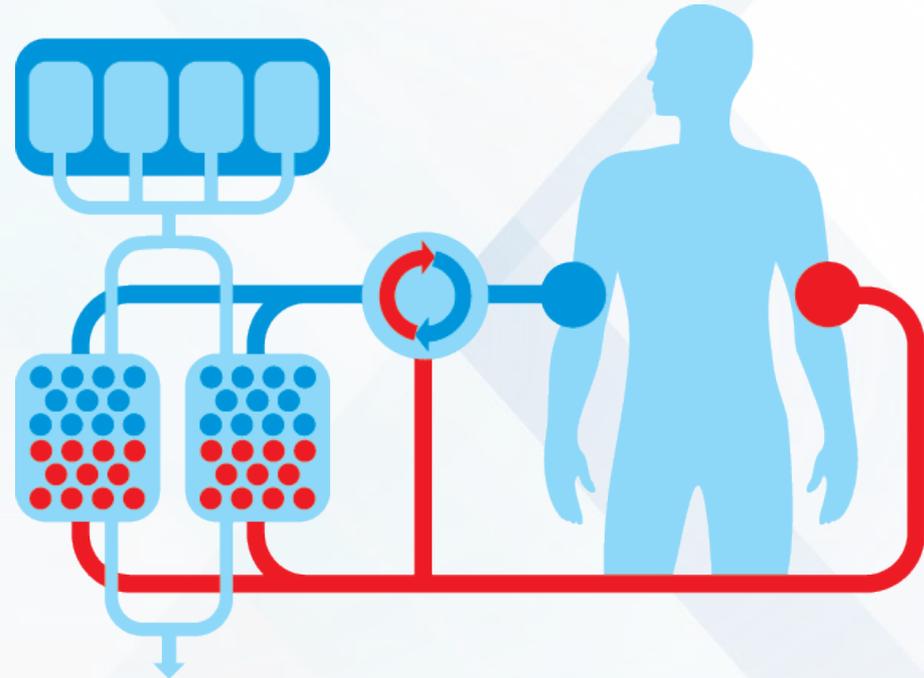
## Considerations for your ICU program

- Ensuring CRRT proficiency, education, and experience
- Establishing and managing optimal therapy plan and its execution
- Balancing cost considerations

# Managing the Optimal CRRT Program

Delivering successful therapy with CRRT depends on multiple factors:

- Filter “set” life
- Treatment time/treatment time lost
- Dose delivered relative to target
- Fluid removal rate
- Access/return blood flow rate





# The Starting Point

# The PRISMAFLEX System

## Gather data that your device captures

- Your device captures non-PHI data:
  - Modality
  - Duration of therapy
  - Non-identifiable patient attributes (ie. age, weight)
  - Alarms
  - Consumption of filters and fluids
- Establish a method for systematic collection of data
- Create a plan for regular analysis and review



A group of healthcare professionals, including a man in a suit and several women in blue scrubs, are gathered around a table in a meeting room. They are looking at a laptop screen and discussing documents. The scene is brightly lit, suggesting a modern clinical or office environment.

# Expert Support

# Leverage Available Vendor Support

## Device and clinical expertise

- Assist in establishing and supporting a successful CRRT program
- Support device and related software platforms
- Assist in the identification of procedural gaps
- Ongoing customer support



# Software Tools

Powerful analysis tools are  
available through your vendor  
support experts



# The Big Picture

## How it works



Collection  
of data



Analysis of data



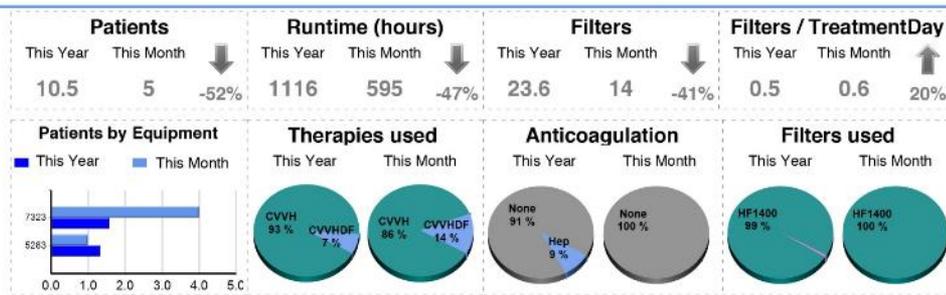
Report  
generation

# Dashboard Review

## High level look vs. customized targets

- Q. 1) What is our average filter life?
- Q. 2) How much treatment time is lost?
- Q. 3) How are we tracking toward our dosing target?
- Q. 4) How much fluid was removed per TreatmentDay?
- Q. 5) How many access/return (AR) alarms do we have?

### September at a Glance



Provides a summary view with trending over time.  
Track against YOUR established targets.

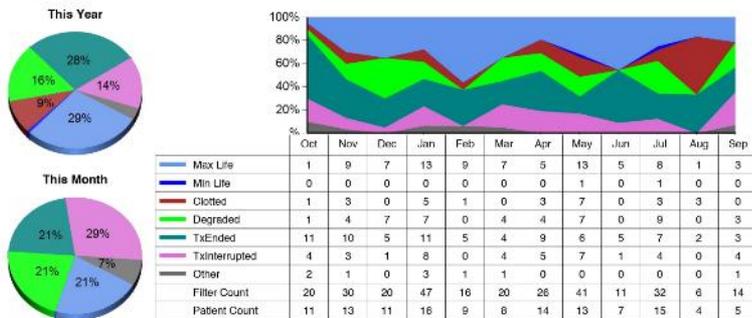


# Filter Set Life

Maximize clinical benefit; minimize cost

Q. 1) What is our average filter life?

Q. 1a) Why are we changing filters?



Understand your average filter life  
Analyze reasons for filter changes  
Explore opportunities to improve filter life

# Clotting

## Key contributor to reduced filter set life

Q. 1b) How many filters do we lose due to clotting\*?

Clotted Filters, by Therapy:

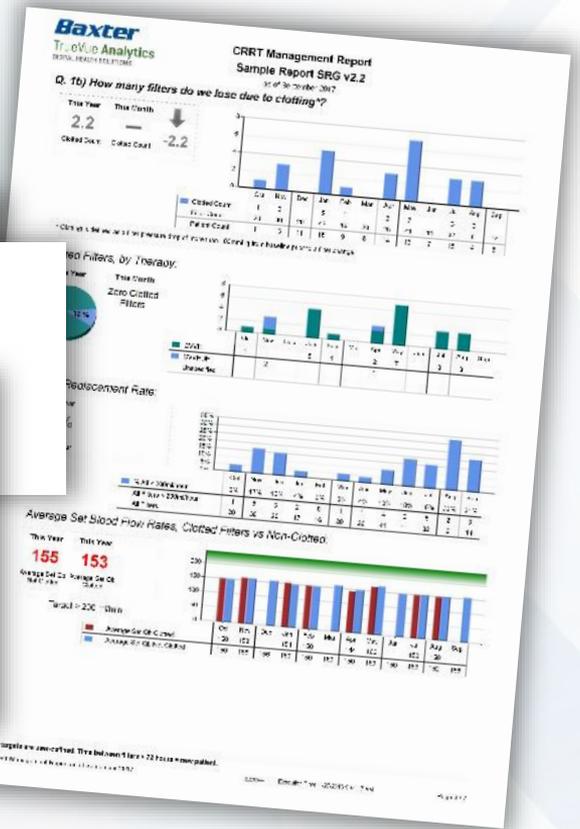
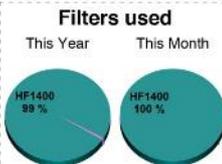
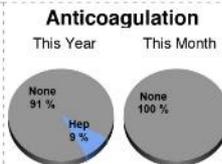
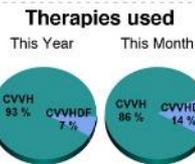
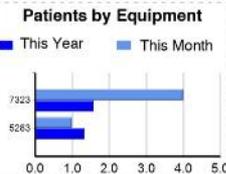
Post Replacement Rate:

Average Set Blood Flow Rates, Clotted Filters vs Non-Clotted:

This Year This Year  
**155 153**  
 Average Set Ob Average Set Ob



### September at a Glance



Evaluate if clots occur post replacement

Examine flow rates, clotted vs. non-clotted filters

# Treatment Time

## Measure and manage lost time

Q. 2) How much treatment time is lost?

Q. 2a) What events account for time lost?

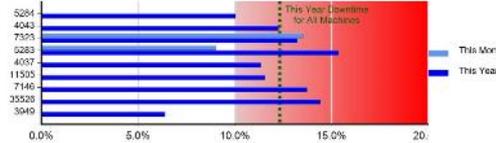
Q. 2b) How much are individual machines contributing to downtime?

This Year **12%**  
% Downtime

This Month **12%**  
% Downtime

**-4%**

Target < 10%



This Year/This Month	5284	4043	7323	5283	4037	11505	7146	35520	3949
% Downtime	10%	12%	13%	14%	15%	9%	11%	12%	14%
Downtime(h)	22	25	23	51	26	20	13	12	8
Runtime(h)	222	204	172	377	170	217	119	104	57
Machine Changes	0.0	0.1	0.1	0	0.0	0	0.0	0.0	0.0
Patient Count	1.7	1.9	1.6	4	1.3	1	1.5	1.3	0.8

Trend treatment lost vs. target: annually, monthly

Assess specific events causing downtime

Isolate machines as key contributors of lost time

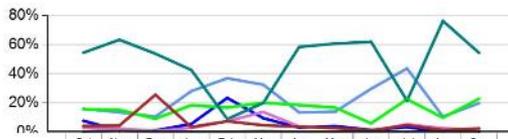
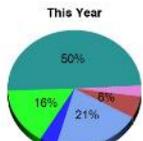


# Dosing

## Track dose delivery relative to target

Q. 3) How are we tracking toward our dosing target?

Q. 3a) What events account for time lost?



	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Bag Change	16%	13%	10%	26%	37%	32%	13%	14%	30%	44%	10%	20%
Recirculation	8%	1%	1%	5%	23%	9%	3%	4%	1%	3%	0%	0%
Filter Change	16%	15%	9%	18%	17%	20%	18%	17%	6%	22%	10%	23%
PI Time Off	54%	63%	54%	43%	9%	20%	58%	61%	62%	21%	76%	54%
Access/Return	3%	2%	1%	3%	7%	14%	4%	2%	0%	5%	2%	1%
Other Alarms	4%	4%	25%	3%	7%	4%	3%	3%	1%	4%	1%	2%
Other	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Downtime (h)	100.8	197.1	185.0	250.2	62.2	91.1	120.3	269.2	95.7	116.9	41.5	70.7
Filter Count	20	30	20	47	16	20	29	41	11	32	6	14
Patient Count	11	13	11	16	9	8	14	13	7	15	4	5

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
% Delta of Prescribed vs Delivered	13%	14%	23%	11%	7%	10%	17%	15%	8%	10%	13%	12%
Prescribed Dose	26	34	30	28	30	31	24	28	28	26	20	28
Delivered Dose	23	29	23	25	27	28	20	24	26	24	18	24



Track against dosing target range

Monitor variances to acceptable deltas

Evaluate delta variances vs. reasons for time lost

# Fluid Removal

## Trend and track fluid removal data

Q. 4) How much fluid was removed per TreatmentDay?

Q. 4a) What is the average weight loss per treatment?

Q. 4b) What is the average length of therapy per patient?



	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Days per Patient, Last Year	4.3	2.1	4.1	4.6	5.8	6.3	4.8	4.6	5.9	6.0	5.3	3.6
Days per Patient, This Year	3.2	4.8	4.1	6.1	5.0	5.3	3.1	6.0	4.4	4.1	2.8	5.2
Filter Count	20	30	20	47	16	20	26	41	11	32	6	14
Patient Count	11	13	11	16	9	8	14	13	7	15	4	5

Understand fluid removal rate trends  
 Compare fluid removal to weight loss  
 Measure length of therapy, start to end



# A/R Alarms

## Monitor Access/Return blood flow rate

Q. 5) How many access/return (AR) alarms do we have?

Q. 5a) How are our access/return alarms trending over time?

Q. 5b) What events account for time lost?

Q. 5c) Are we maintaining at least 200 ml/min average Blood Flow? (Heparin/None)



	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Average Set Qb	150	158	156	150	150	160	149	169	150	153	151	156
Average Actual Qb	140	145	140	143	142	150	141	155	138	145	145	146
Filler Count	20	30	20	47	16	20	26	41	11	32	6	14
Patient Count	11	13	11	16	9	8	14	13	7	15	4	5

Filler Count	20	30	20	47	16	20	26	41	11	32	6	14
Patient Count	11	13	11	16	9	8	14	13	7	15	4	5

Track access/return alarm activity over time  
Assess A/R alarms contributing to time lost  
Trend blood flow over time vs. target



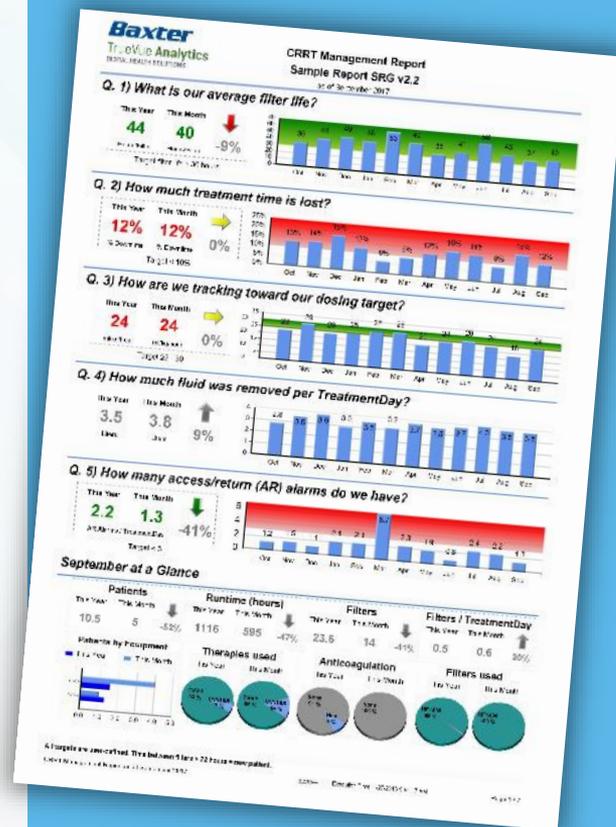
# Recap

Use data to optimize your CRRT program

# Recap

## Use data to optimize your CRRT program

- Determine which therapy is right for each patient
- When using CRRT, leverage all resources available to you
- Mine the data from your device to establish an optimization plan
- Benchmark against targets and history



# Learn More

Leverage online and professional resources



[renalacute.com](http://renalacute.com)

- PORTFOLIO MANAGER**  
Offers support for all renal therapy & product business transactions and provide oversight to client satisfaction that is focused on a long-term, beneficial experience and relationship building.
- THERAPY DEVELOPMENT SPECIALIST**  
Experts in the area of CRRT and TPE advanced therapies who can advise and provide information on product use for client-specified therapeutic goals.
- CLINICAL EDUCATOR**  
Provide and manage new and existing client education programs and ensure completion to help inspire confidence and success in CRRT programs.
- FIELD TECHNICAL SERVICE**  
Technical service support for biomed teams, including troubleshooting, repair, and maintenance services.

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*Thank You*

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