

Competenze e pratiche
di nursing
per una corretta



Vicenza 2019

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di nursing
per una corretta



Perché un convegno sul nursing della CRRT?



Claudio Ronco

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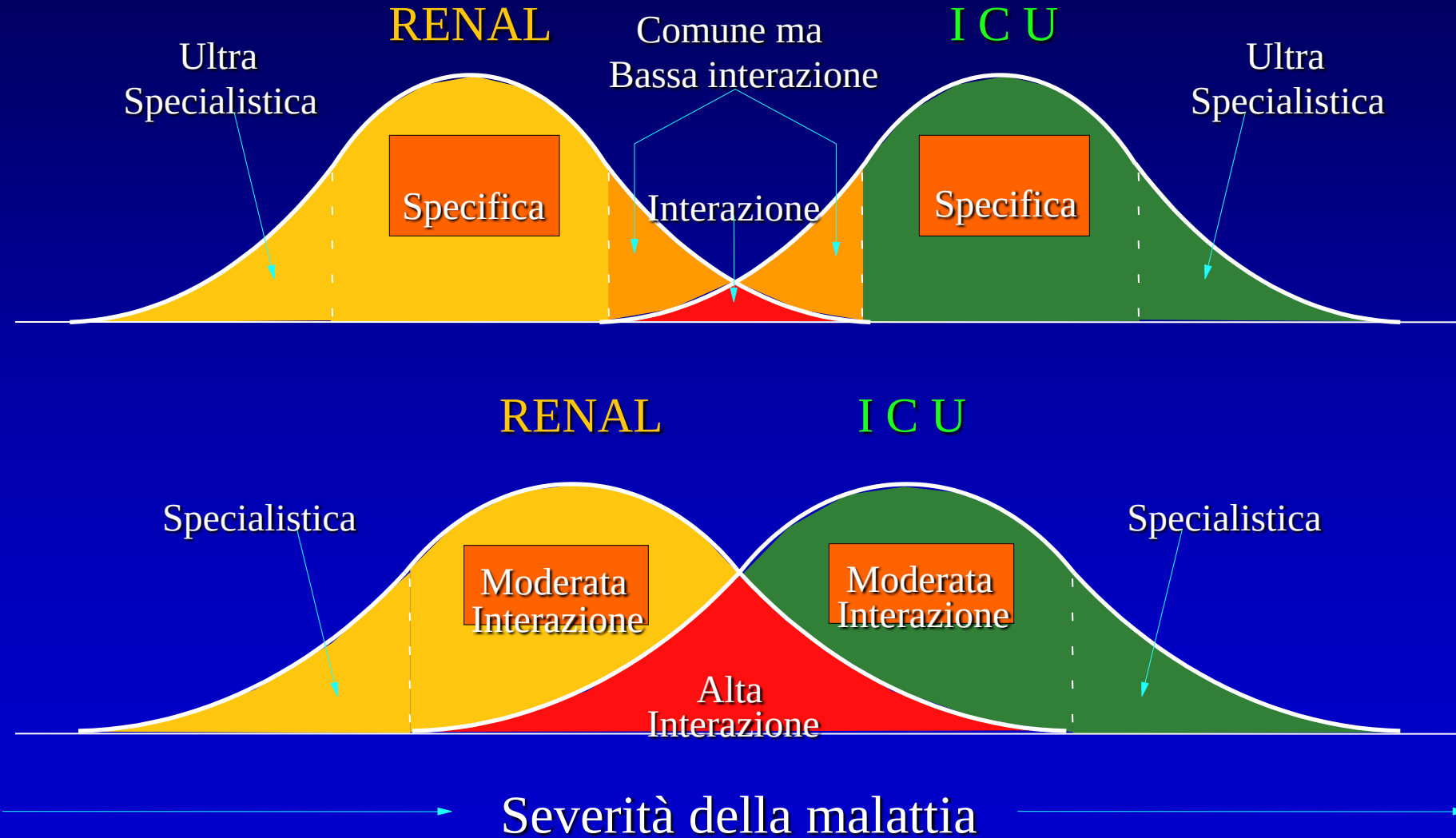
Department of Nephrology Dialysis and Transplantation

International Renal Research Institute

St. Bortolo Hospital, Vicenza - Italy

Insufficienza Renale Acuta

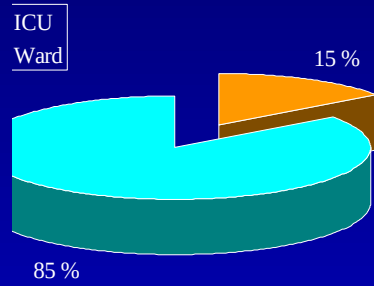
dalla Specialità all'approccio multidisciplinare



Insufficienza renale acuta con necessità di dialisi

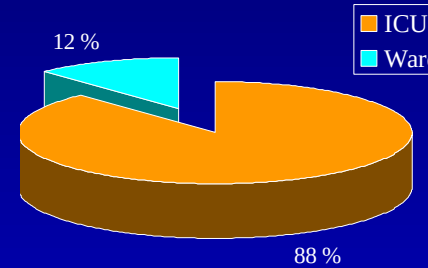
Una popolazione in continuo mutamento

Vicenza Database 1975 – 1980
Numero totale di casi incidenti= 80



Mortalità 54 %

Vicenza Database 1995 – 2000
Numero totale di casi incidenti= 575



Mortalità 53 %

Insufficienza renale acuta

... Nello scorso millennio

mortalità ~ 50%



1964

In questo millennio

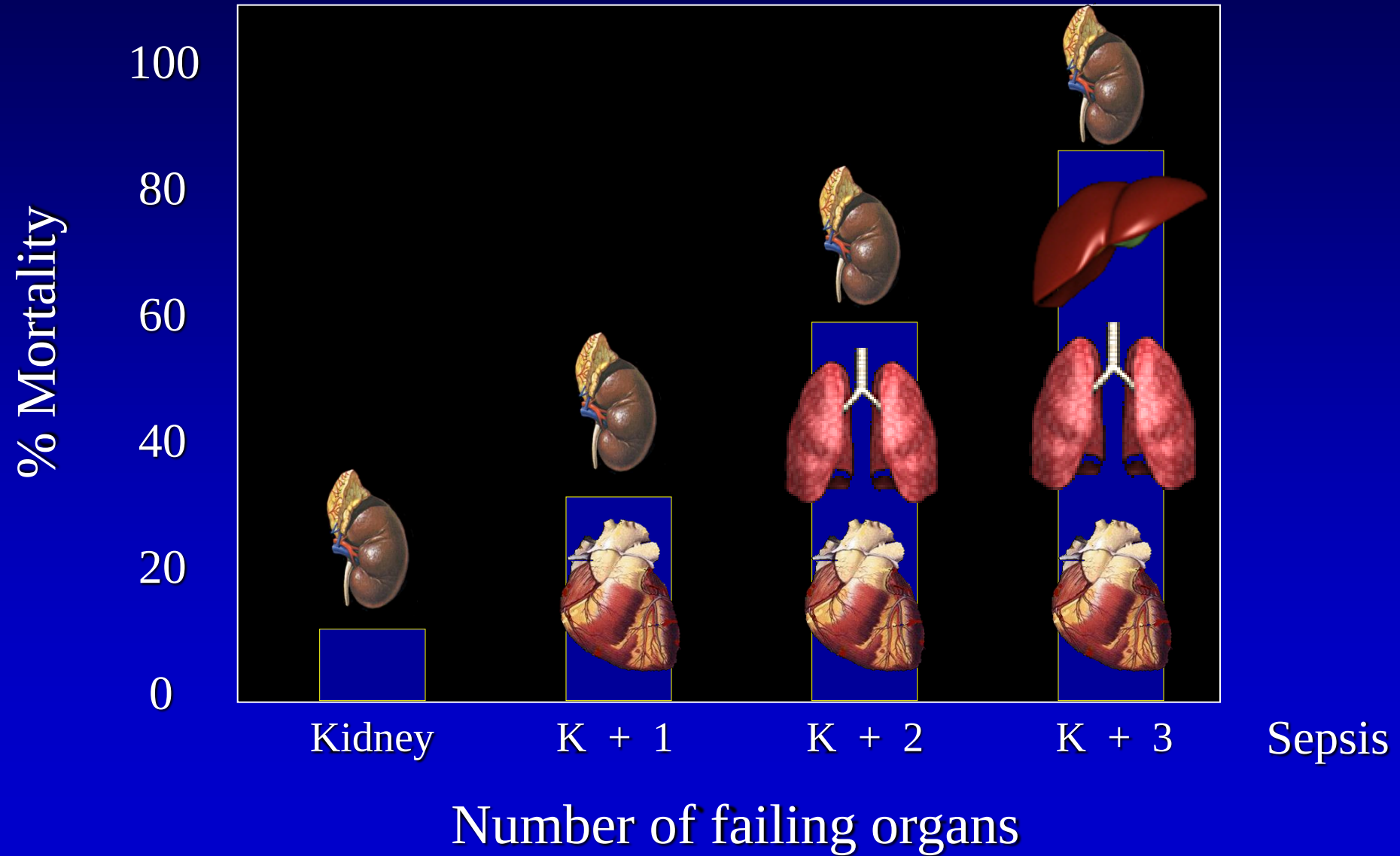


2004

Ma i pazienti
.....sono differenti

MORTALITY IN ACUTE RENAL FAILURE

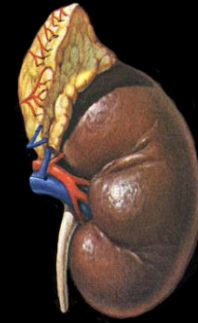
A PROBLEM OF SEVERITY SCORE



2019 Mortalità 40%

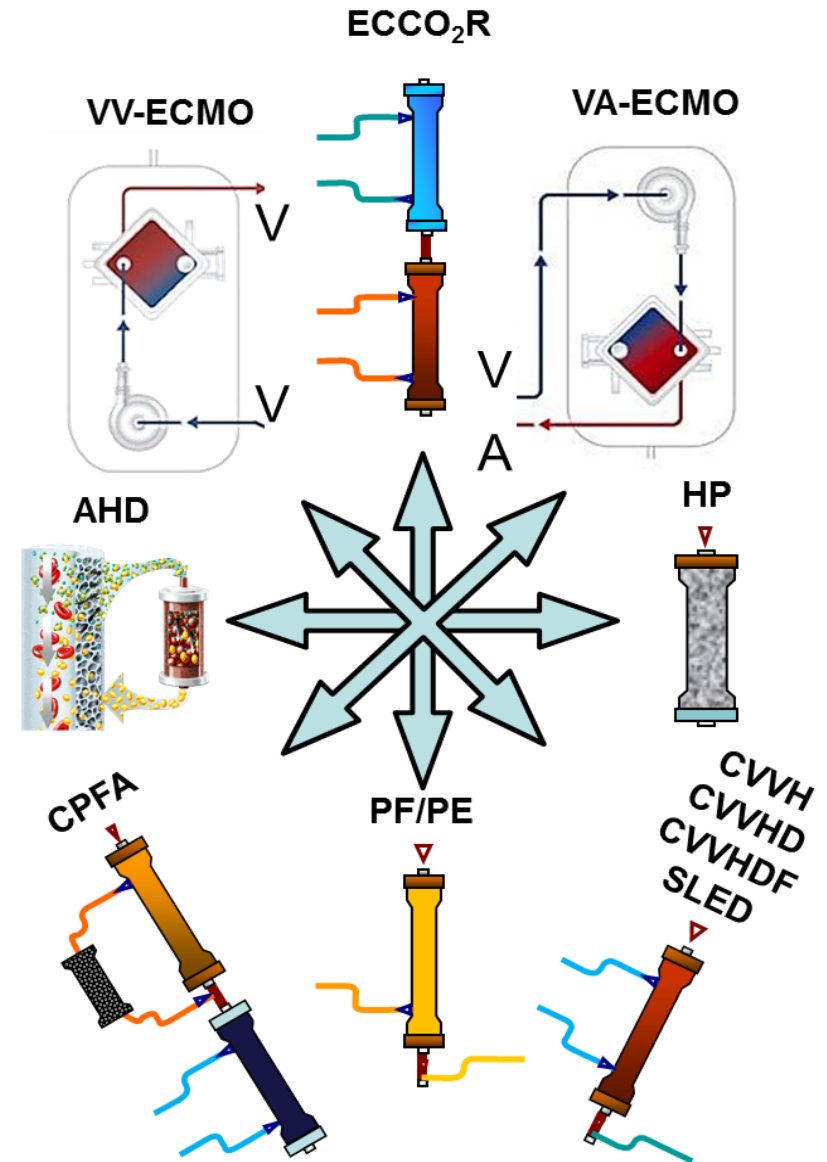
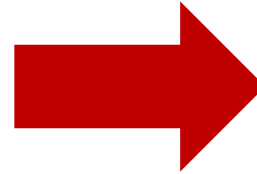
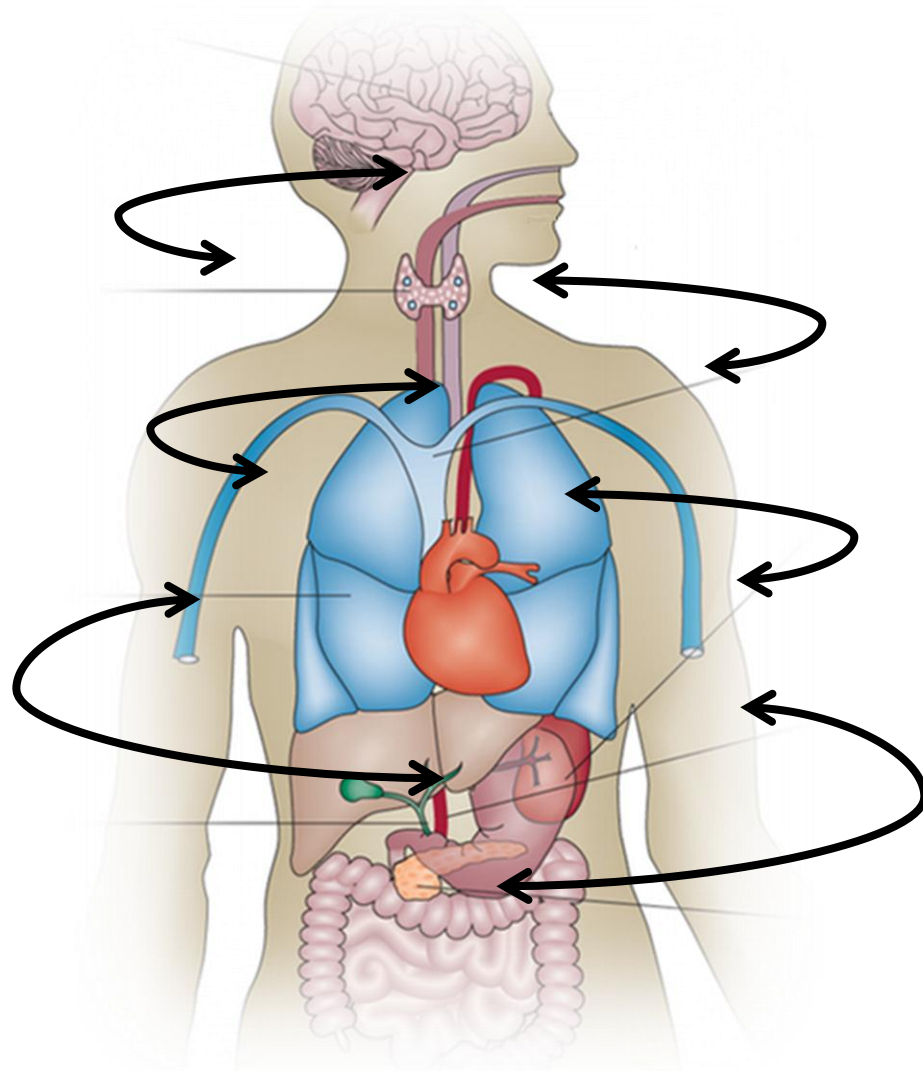


ICU



ICU

From Native to Artificial Organ Crosstalk





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Coinvolgiamo anche altre discipline!!!

- 1) La cardiocirurgia
- 2) La Cardiologia
- 3) Le terapie intensive mediche
- 4) Le terapie intensive chirurgiche
- 5) Le divisioni di malattie infettive



Intensive Care



Intensive Care



Cardiac Surgery



Cardiology



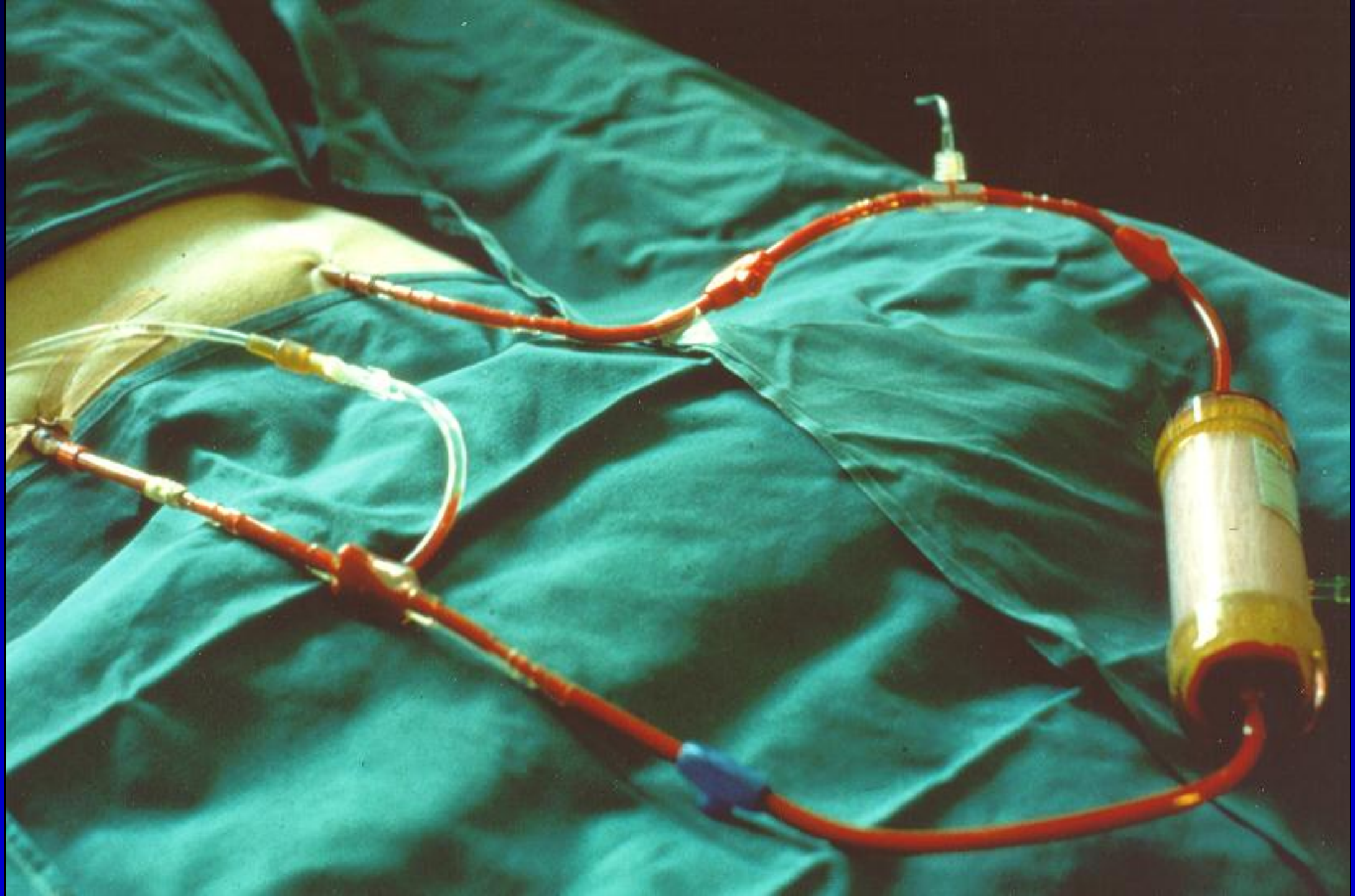
Surgery

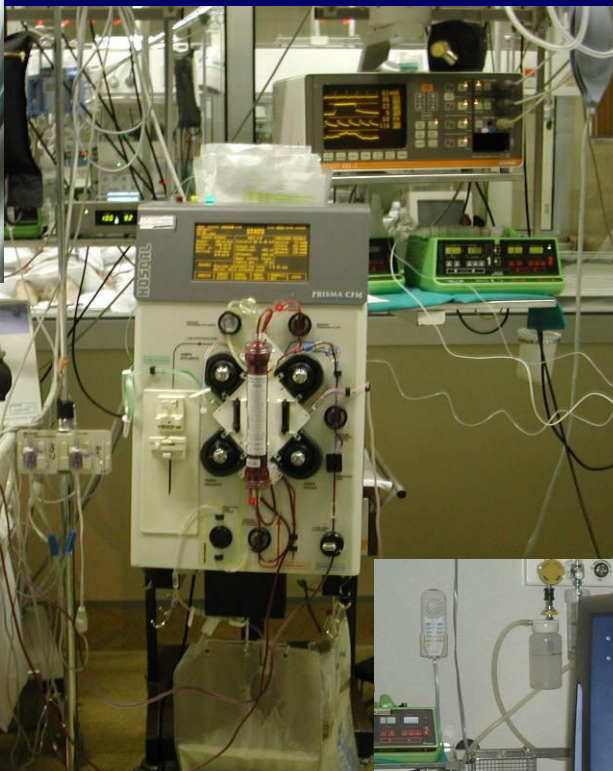


Nephrology

The Vicenza Model







2-2-17
TERAPIA
SEMI-INTENSIVA
Letti A-B





Vicenza 2019



**In CRRT vi è un ruolo centrale
del nursing e la formazione del
personale rappresenta un momento
chiave per una corretta
somministrazione della terapia**



Il pool infermieristico per
le terapie acute.
Un modello innovativo da
seguire?







Vicenza 2019



Che cosa discuteremo nei prossimi giorni?

- 1) I motivi di una collaborazione interdisciplinare
- 2) L'evoluzione della tecnologia e del nursing dedicato
- 3) La gestione infermieristica combinata del paziente
- 4) le problematiche tecniche, cliniche e organizzative
- 5) Barriere e soluzioni per una CRRT sempre più sicura
- 6) Prove pratiche e discussione con varie macchine
- 7) Scopriremo che stare insieme vuol dire condividere esperienze
- 8) Speriamo che diventerete tutti parte del "Vicenza Nursing Team"

Vicenza, 26 Marzo 2019

Evoluzione delle CRRT



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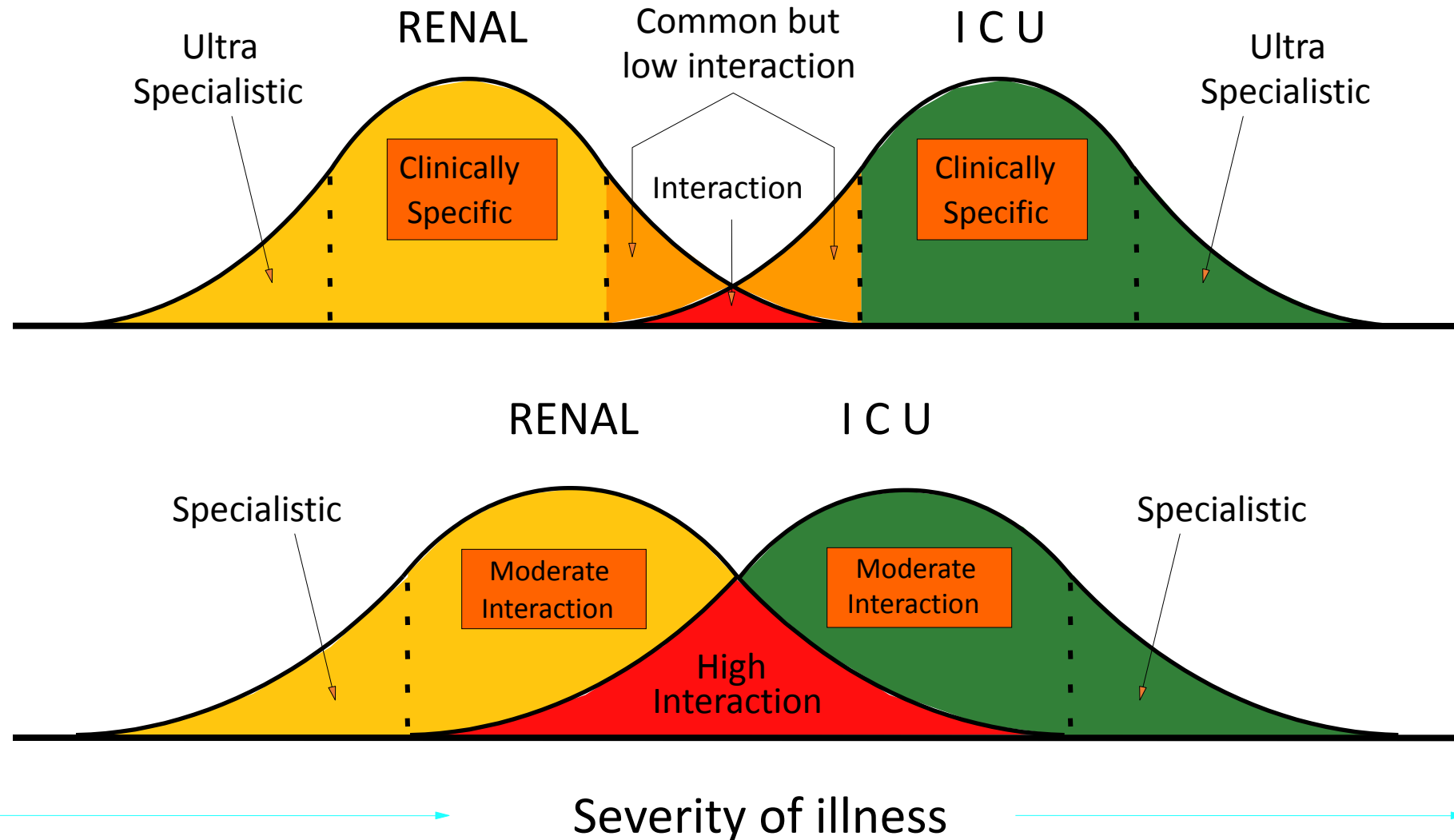
PRESENT

FUTURE

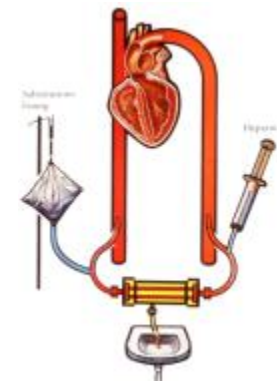
PAST

Critical Care Nephrology

FROM SPECIALITY-ORIENTED TO PATIENT-ORIENTED



40 years of CRRT



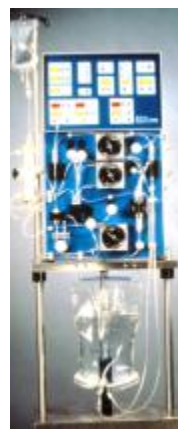
CAVHD
CAVHDF
Fluid
Balance
systems

1983



First
generation
CRRT
machines
CVVH
CVVHD
CVVHDF

1990



Third
generation
CRRT
machines,
Tr. of Sepsis
HVHF &
HCO Membr.

2002



Lung support
ECCO2R
Citrate
anticoagulation
Sorbents

2010



Fourth
generation
CRRT machines



1977
First CAVH
In Gottingen
and
First CAVH
in Vicenza

1986
CVVH
CVVHD
and
Adoptive
Technology

1995
Second
generation
CRRT
machines
CVVH
CVVHD
CVVHDF
and studies
on Dose &
Adequacy
35 ml/Kg/h

2005
Liver support
MOST, CPFA

2017

International Renal Research Institute of Vicenza







Intuitive user Interface

Toolbar settings

Animated set illustration

Message center showing the most recent alarms and events

Current pressure measurements and limits

Treatment status information

The interface is divided into several sections:

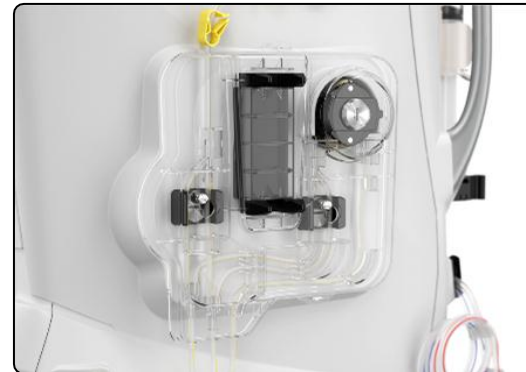
- Toolbar:** Includes icons for History, Tools, System, Lock, and Help, along with the date (09 Feb 2017), time (16:01:39), and AC Power status.
- Therapy Section:** Displays various therapy parameters and their units:
 - PBP Cit: 3.0 mmol/L B, 1200 ml/h
 - BFR: 120 ml/min
 - PFR: 0 ml/h
 - Dia: 800 ml/h
 - Rep: 300 ml/h
 - Ca Syr: 100 %, 14.7 ml/h
- Pressure Measurements:** Displays Access, Return, TMP, and ΔP measurements and limits:
 - Access: 450 mmHg
 - Return: 400 mmHg
 - TMP: 500 mmHg
 - ΔP: 500 mmHg
 - Filter: 70 mmHg
 - Effluent: -56 mmHg
 - PFRct: 31 %
- Treatment Status Information:** Displays PFR (15min) and Effluent Dose (8h) data:
 - PFR (15min): Current Period 3 ml, Previous Period -3 ml
 - Effluent Dose (8h): Prescribed 28.9 ml/kg/h, Delivered 14.5 ml/kg/h
- Message Center:** Shows a list of recent alarms and events, including:
 - 16:00: Alarm T0527 Cannot Monitor Return raised
 - 15:59: Alarm T1279 Chamber Level Low raised
 - 15:59: Alarm T1193 Effluent Low Flow Rate raised
 - 15:58: Alarm T1193 Effluent Low Flow Rate raised
 - 15:47: Alarm T1571 Check Calcium Syringe Line raised
 - 15:45: Alarm T1571 Check Calcium Syringe Line raised
 - 15:45: Alarm T1614 Return Line Clamped raised
 - 15:36: Alarm T1614 Return Line Clamped raised

Auto-effluent drain accessory

- Eliminates the most frequent interaction ICU nurses have with CRRT therapy
- Works by continuously directing effluent flow into one of the two bags while emptying the other into a nearby drain

Benefits

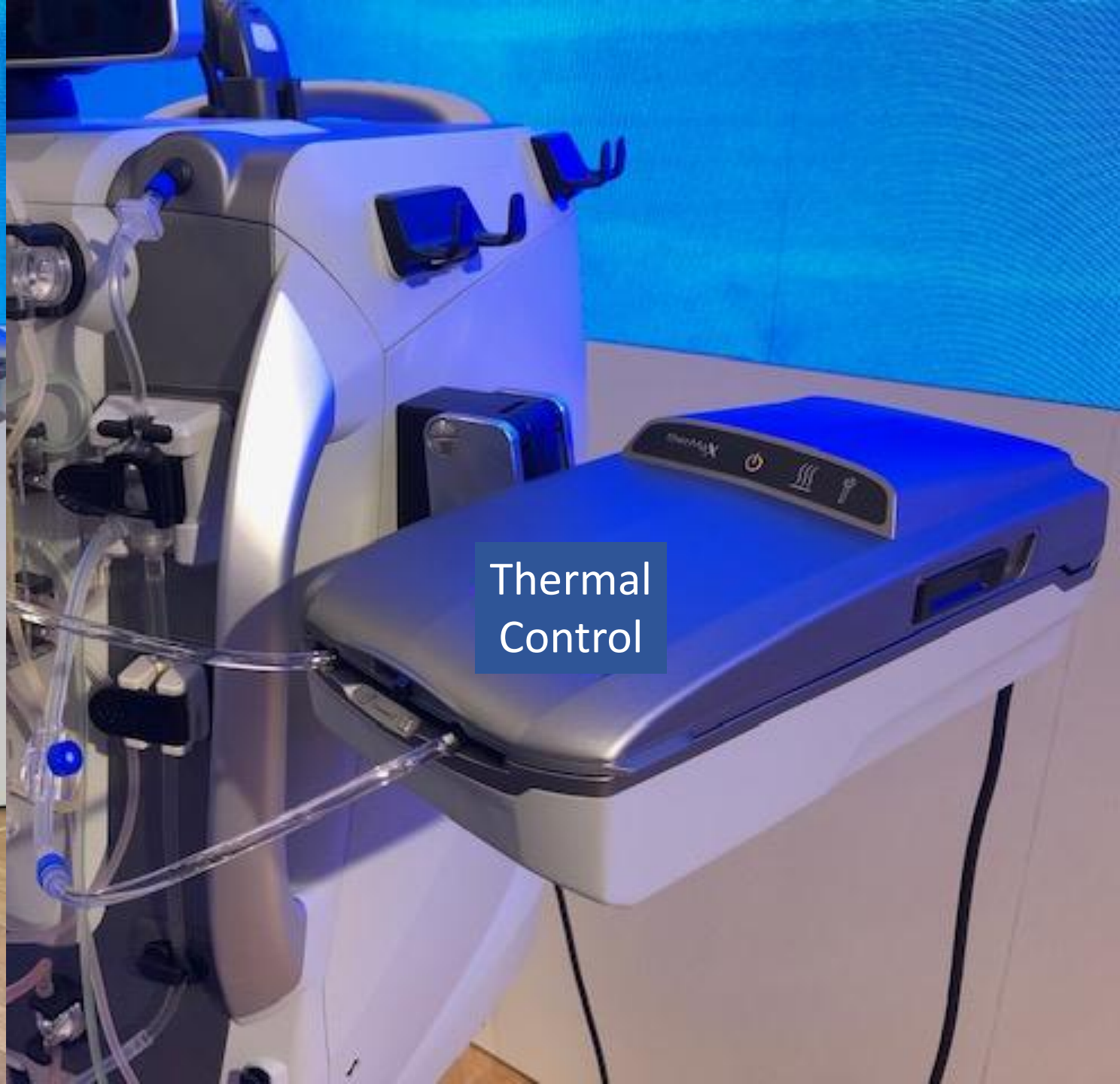
- Less interventions
- Time back for nurses
- Reduced downtime
- Minimizes exposure to the effluent



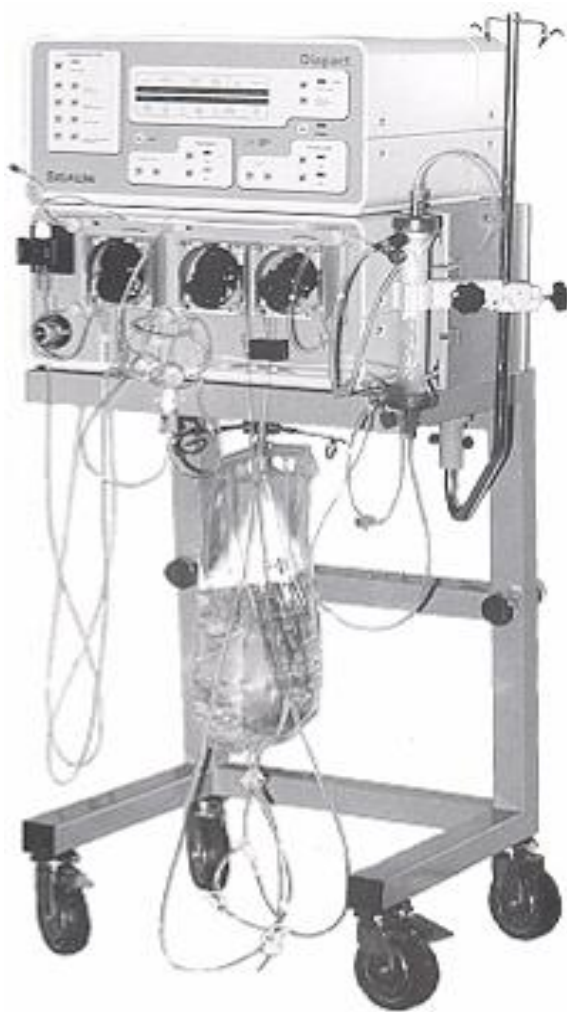
Patient fluid removal catch-up

- Tracks stop time (up to a running total of 10 minutes of lost time, continuous total)
- Upon treatment restart, the device will increase effluent pump flow 20% to catch up
- If treatment stops again, treatment is accelerated again (up to 10 minutes)
- Enabled by default

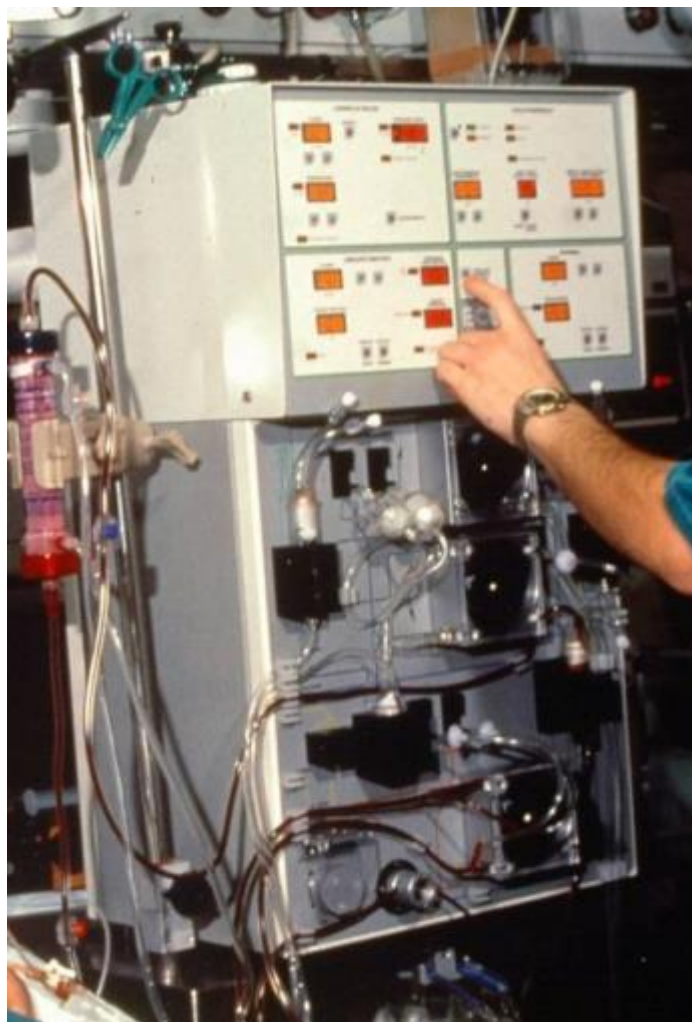




From ECU to Omni: a long way



1988



1991



1994

From ECU to Omni: a long way

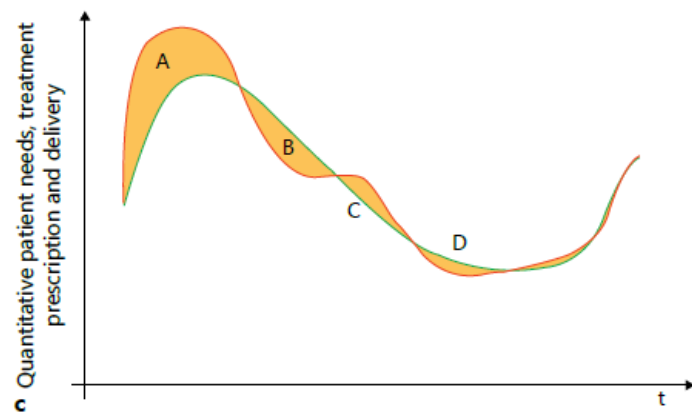
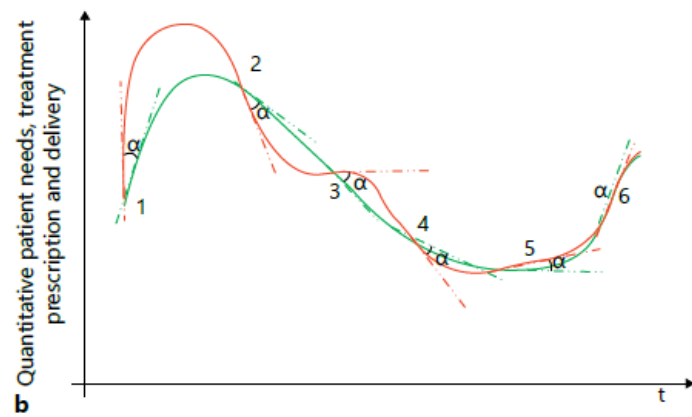
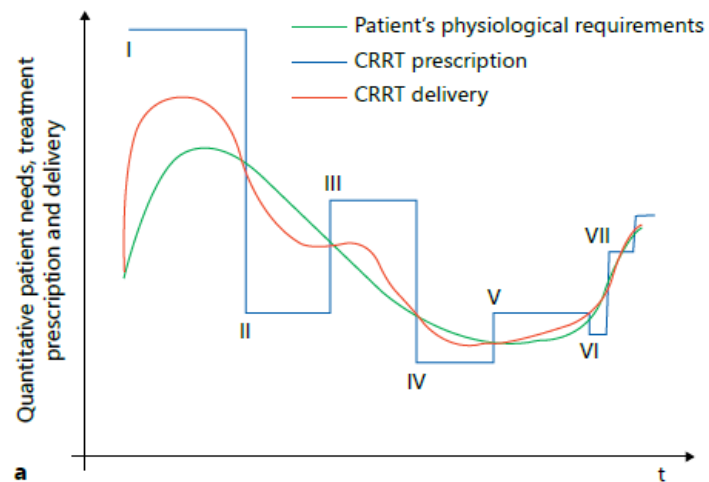


2004

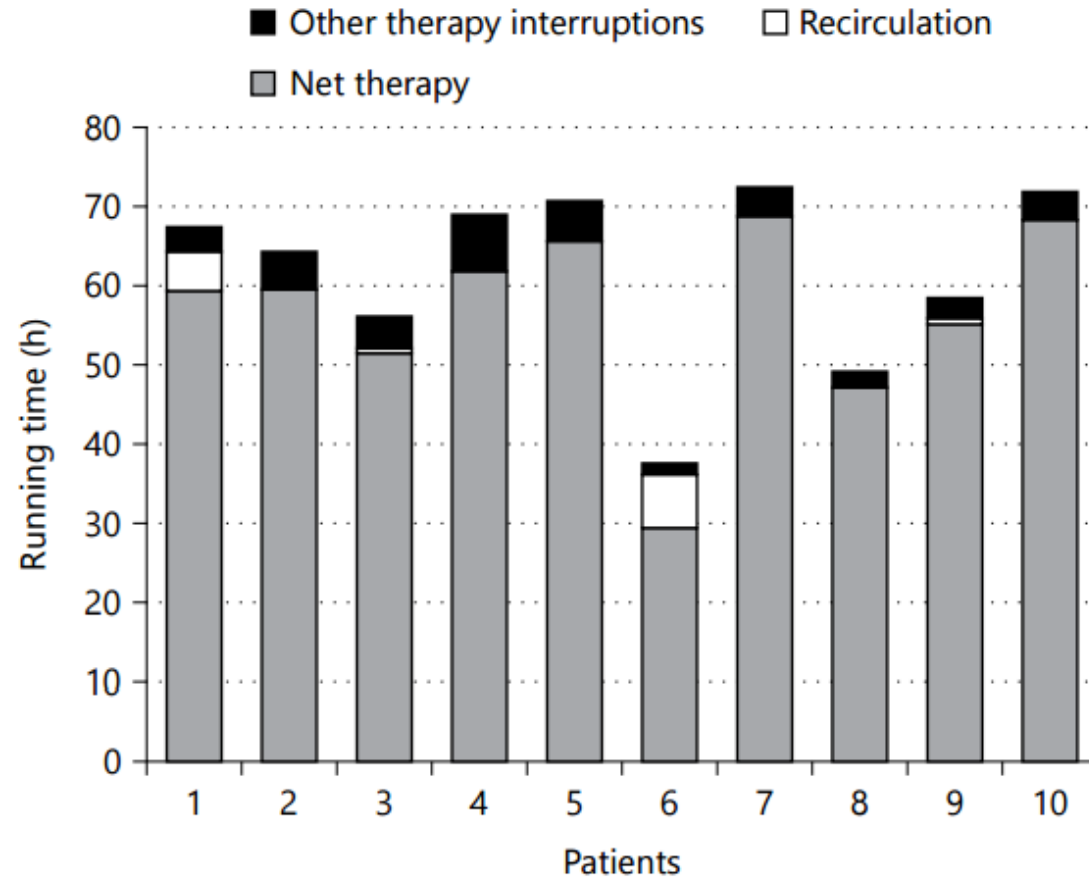


2017





Delivered renal dose was 96.6% of prescribed.

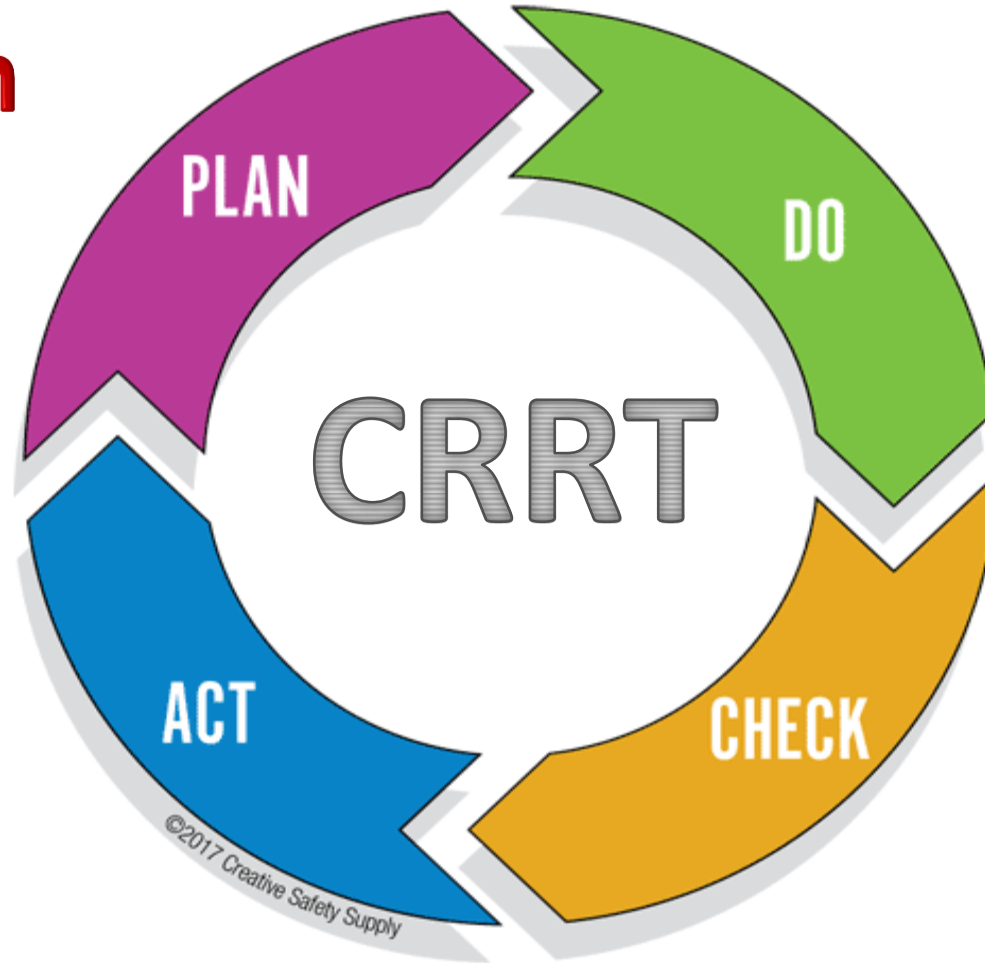






**Policy and
Prescription**

**Setting and
Delivery**

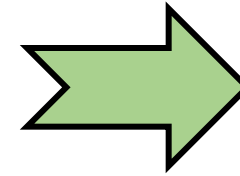
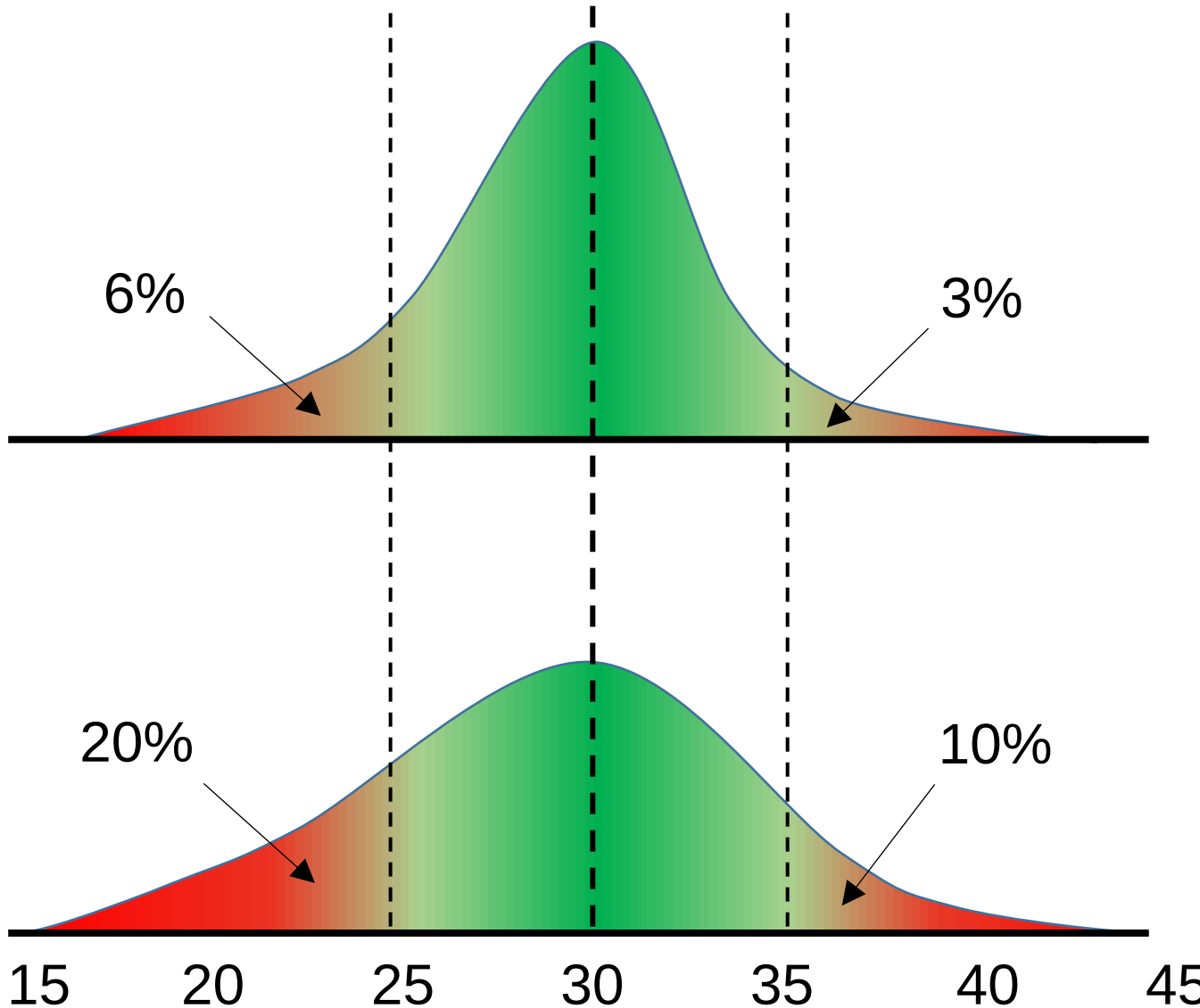


**Policy
Changes**

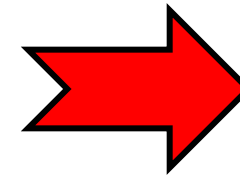
**Supervising &
Monitoring**

Examples of Quality Control in CRRT

(Prescription 30 ml/Kg/hr)



Control
Outliers



Change
Policy