

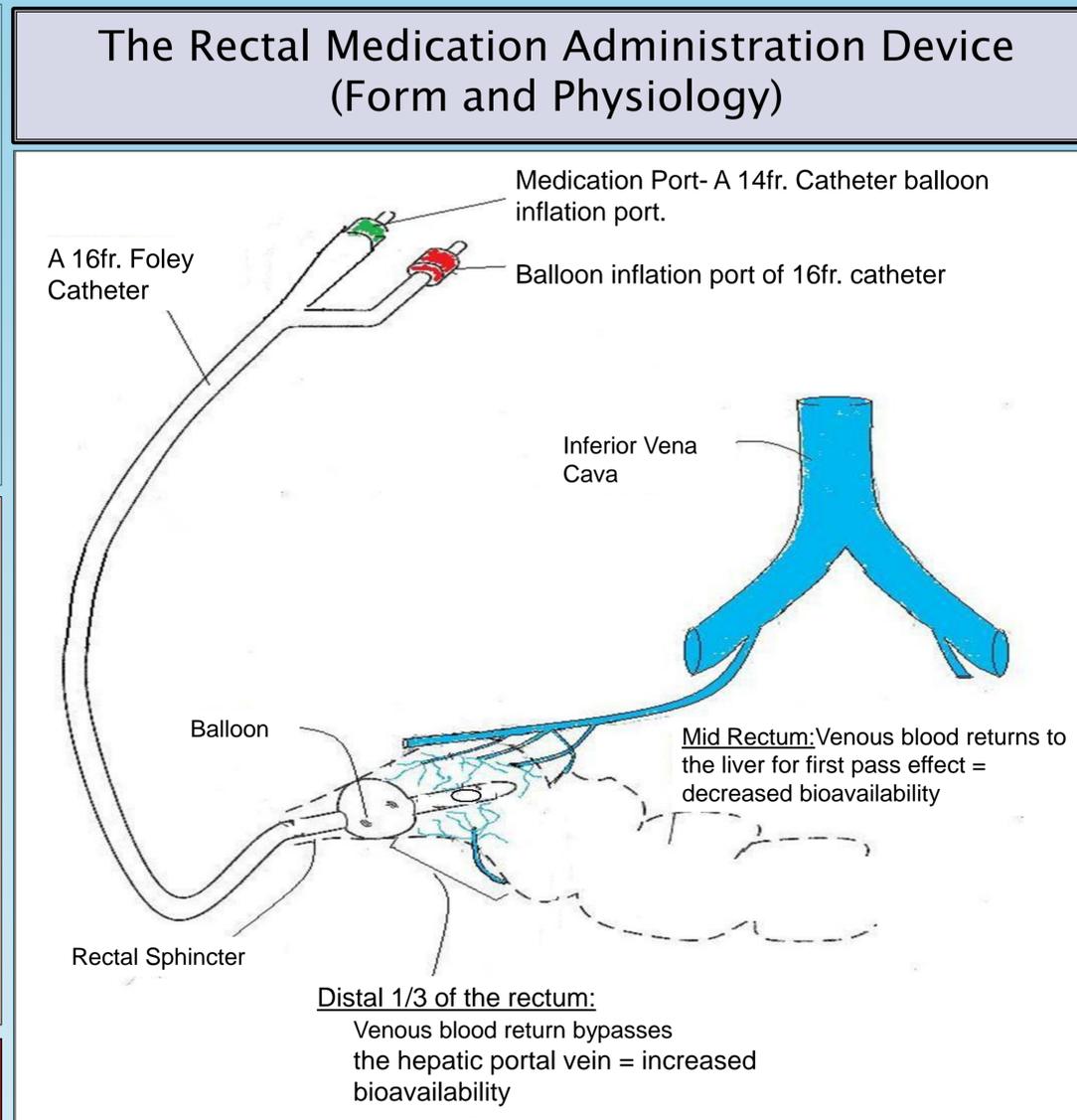
# A Quality Improvement Study: Use of a Rectal Medication Administration Device Intervention to manage end-stage symptoms in hospice patients when the oral route fails

**Purpose:** Two hospice agencies in Northern California have implemented a rectal medication administration device (RMAD) intervention as an alternative for medication delivery to better manage symptoms in the end stage home hospice patient when the oral route is no longer an option. A quality improvement study was performed evaluating the use of this novel intervention, which allows for ongoing, minimally invasive, and discreet delivery of medications to the distal 1/3 of the rectum in hospice patients when the oral route fails. Anecdotal experience shared by the hospice staff suggested the RMAD is an effective intervention, providing rapid management of end-stage symptoms, while allowing for peaceful, dignified death at home. This Quality Study was performed to evaluate the effectiveness of the RMAD at the end of life when symptoms are difficult to control, and the oral route is no longer viable for medication delivery.

**Methodology:** Decedent records from 374 patients that expired on service during a six month period were reviewed. 37 patients with RMAD intervention were identified in the medical record. All RMAD patient files were then analyzed independently by two registered nurses to obtain the following data.

1. the percent of patients needing RMAD intervention
2. the effectiveness of the RMAD intervention for control of pain, dyspnea seizures and agitation
3. reason for RMAD intervention; bowel obstruction, nausea and vomiting, or inability to swallow
4. the death outcomes for patients who had an RMAD intervention
5. complications ; discomfort, clogging, or dislodging of the device
6. demographic data on patients with RMAD intervention including diagnosis, age, gender and length of stay (LOS)

Demographics (Study Group N=37)	Kaiser Hospice Martinez CA	Kaiser Hospice Vallejo CA	Both Agencies
Total Patients on Service	189	185	374
Total RMAD Interventions	20	17	37
Average age	62	72	67
Gender	60% Male (N=12)	65% Male (N=11)	62% Male(N=22)
Cancer Diagnosis	90% (N=18)	82% (N=14)	86%
Ave. LOS	45 days	39 days	42 days



**Conclusion:** The RMAD intervention managed patients pain, dyspnea, seizures, and agitation rapidly and effectively. All patients died peacefully without hospital intervention. No complications or discomfort were reported. This study supports the use of the RMAD for patients with bowel obstruction (N=5), severe vomiting (N=2), agitation (N=26), and any difficult symptom management issues when the oral route is no longer viable for medication delivery.

Results (N=37)	Pain (N=28)	Dyspnea (N=19)	Seizures (N=2)	Agitation (N=26)	Death Outcome
ALC* Definition	< 4 scale 0-10	< 4 scale 0-10	Absence of seizures	Calm or Sleeping	Peaceful Death
Effectiveness (Achieving ALC)	86%	84%	100%	96%	100%
# of Patients Achieving ALC	24 /28	16 /19	2 /2	25 /26	36 /36
Average Reported TALC**	31 Minutes	29 Minutes	30 Minutes	33 Minutes	N/A
Average LOC*** Before RMAD	6.6	7	Present	Present	N/A
Average LOC After RMAD	1.8	1.7	Absent	Calm or Sleeping	N/A

\* ALC = Acceptable Level of Comfort  
 \*\*TALC = Time to ALC  
 \*\*\*LOC= Level of comfort

**Discussion:** The time to acceptable level of comfort (TALC) for patients in the study group was fast compared to existing research on rectal absorption rates of medications used for terminal symptom management. For example, phenobarbital controlled 25 of the 26 cases of agitation within an average of <1 hour after dosing, compared to the literature reported T-max of >4 hours for phenobarbital given rectally.<sup>1</sup> 25 of the 37 patients who received RMAD interventions had been on various transdermal medications which were not effectively controlling their symptoms. The study did not analyze the overall effectiveness of gels within the general patient population. More research is needed on the effectiveness of transdermal gels. Pharmacokinetic research is also recommended on rectal absorption of medications given through RMAD intervention. Since many hospice patients only have minutes to hours of life, the speed and effectiveness of symptom control is an especially critical component in hospice care.

<sup>1</sup>.F. Moolenaar, B. Koning, T. Huizinga, Biopharmaceutics of rectal administration of drugs in man. Absorption rate and bioavailability of phenobarbital and its sodium salt from rectal dosage forms, Laboratorium voor Farmacotherapie en Receptuur, Ant. Deusinglaan, 2, GroningenThe Netherlands