

Pivoting from 'Busyness' to 'Effectiveness'



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Disclosures

Financial Relationships

Consultant/speaker: Monaghan Medical Corporation

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Fiduciary Relationships

AARC Chartered Affiliate Consultant; AARC Benchmarking Committee; AARC Advanced Practice RT Task Force; AARC Strategic Planning Committee, Respiratory Care author/reviewer; AARC Newsroom author/reviewer, AARC Safe and Effective Staffing Guide project leader, ARCF Education Recognition Award Judge, and...

PROUD AARC MEMBER!

Proceeds from my honorarium will be provided to the following charities. I thank the PSRC for providing this opportunity for our family to support organizations that provide care to those most in need.

- Wounded Warriors
- Next Step Ministries
- Winston Salem Rescue Mission
- Samaritan Ministries
- Crisis Control
- Freedom House

OPPORTUNITY IS NOWHERE



What Are Executives Thinking?

- Cost
- Productivity
- Safety
- Quality
- Engagement

Health Care System Performance Rankings

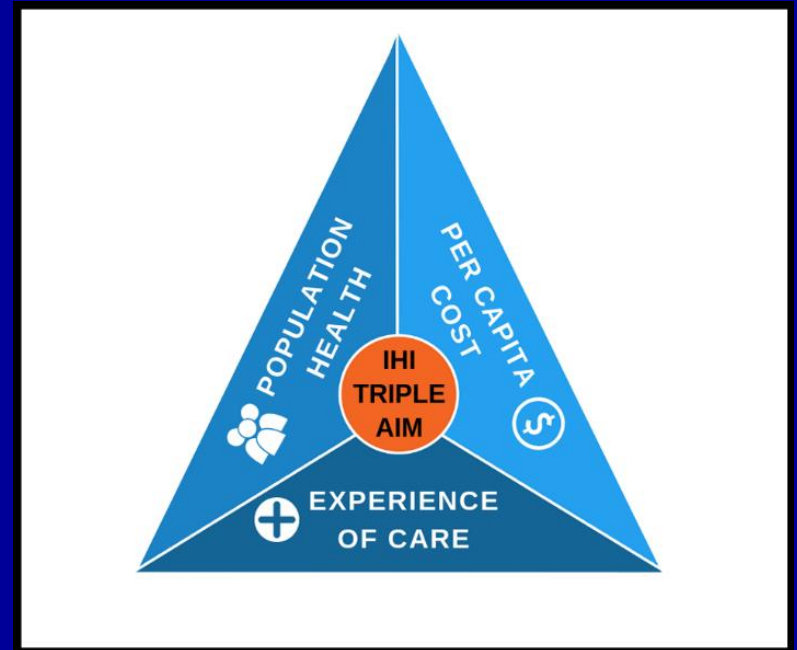
	AUS	CAN	FRA	GER	NETH	NZ	NOR	SWE	SWIZ	UK	US
OVERALL RANKING	2	9	10	8	3	4	4	6	6	1	11
Care Process	2	6	9	8	4	3	10	11	7	1	5
Access	4	10	9	2	1	7	5	6	8	3	11
Administrative Efficiency	1	6	11	6	9	2	4	5	8	3	10
Equity	7	9	10	6	2	8	5	3	4	1	11
Health Care Outcomes	1	9	5	8	6	7	3	2	4	10	11

Source: Commonwealth Fund analysis.

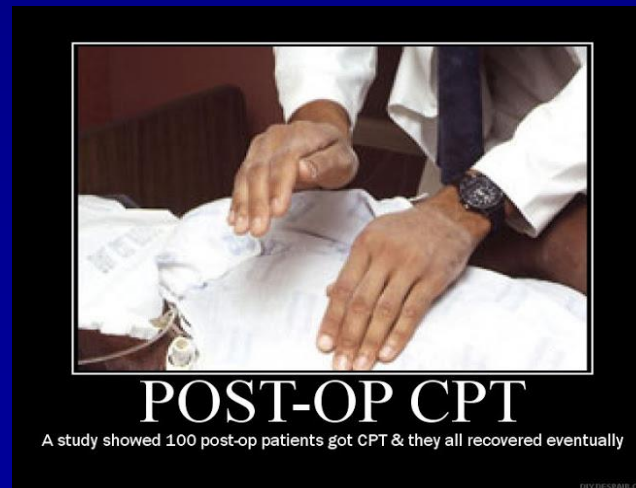
Healthcare Transformation

FROM: Volume, busyness, efficiency, fee-based, meeting the 'numbers'

TO: Evidence-based care delivered efficiently



Value Retrospectroscope



Out with custom

In with Value!

Protocols: Applying the Science of Respiratory Care

- Assure quality
- Align resources
- Improve patient satisfaction
- Reduce cost
- Eliminate waste
- Improve RT staff satisfaction

Value of Respiratory Protocols

http://c.aarc.org/members_area/resources/protocol_references.asp

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Value of Respiratory Protocols

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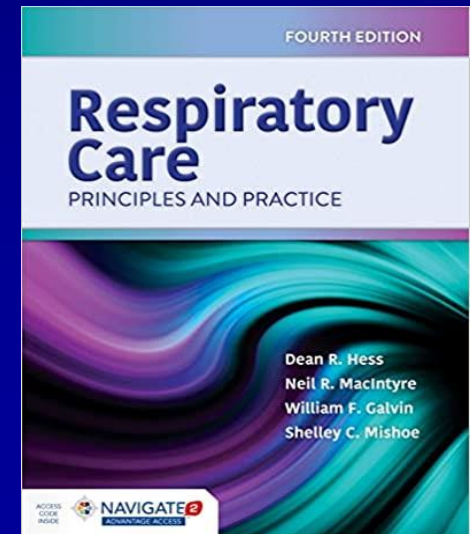
Marini JJ, Gattinoni L. Ventilatory management of acute respiratory distress syndrome: a consensus of two. *Crit Care Med* 2004; 32(1):250-255.

**That's the science
of Respiratory Care!**

Hierarchy of Evidence

Hess D, MacIntyre N, et. al. Respiratory Care: Principles and Practice 2021

- **N-of-1 randomized controlled trial**
- **Meta analysis of randomized trials**
- **Single randomized controlled trial**
- **Systematic review of observational studies**
- **Single observational study**
- **Physiologic studies**
- **Unsystematic clinical observations**



Physician ordered RC versus Physician ordered RTCS: Results of a Prospective Observational Study

Stoller JK, Skibinski CI, et.al. Chest, August 1996

Results suggest that the RTCS can be an effective strategy to allocate respiratory care strategies appropriately while conserving the costs of providing care.



The Scientific Basis for Protocol-Directed Respiratory Care

Modrykamien AM, Stoller JK Respiratory Care • October 2013

- Overwhelming weight of available evidence supports the effectiveness of respiratory care protocols
- Gaps in current understanding remain, especially regarding settings outside the acute care hospital (e.g., geriatric care, palliative care, and extended care facilities)

A randomized, controlled trial of protocol-directed versus physician-directed weaning from mechanical ventilation

Kollef MH, Shapiro SD et. al., Crit Care Med 1997 Apr; 25(4): 567-574.

Objective: Compare practice of protocol-directed weaning from mechanical ventilation implemented by RNs and RTs with traditional physician-directed weaning via an RCT.

Patients: Pts requiring mechanical ventilation (n=357) in medical and surgical intensive care units in two university-affiliated teaching hospitals.

Interventions: Pts randomly assigned to receive either protocol-directed (n = 179) or physician-directed (n = 178) weaning from mechanical ventilation.

Outcomes:

- The median duration of mechanical ventilation was 35 hrs. for the protocol-directed group vs. 44 hrs. for physician-directed group
- Rate of successful weaning was significantly greater for pts receiving protocol-directed weaning compared with pts receiving physician-directed weaning
- Mortality rates for the two treatment groups were similar
- Hospital cost savings for pts in the protocol-directed group were \$42,960 compared with hospital costs for pts in the physician-directed group.

A Real-World Evidence Study Assessing the Impact of Adding the Aerobika OPEP Device to Standard of Care Upon Healthcare Resource Utilization and Costs in Post-Op Patients

Burudpakdee C, Near A, et. al. Pulm Ther; May 2018

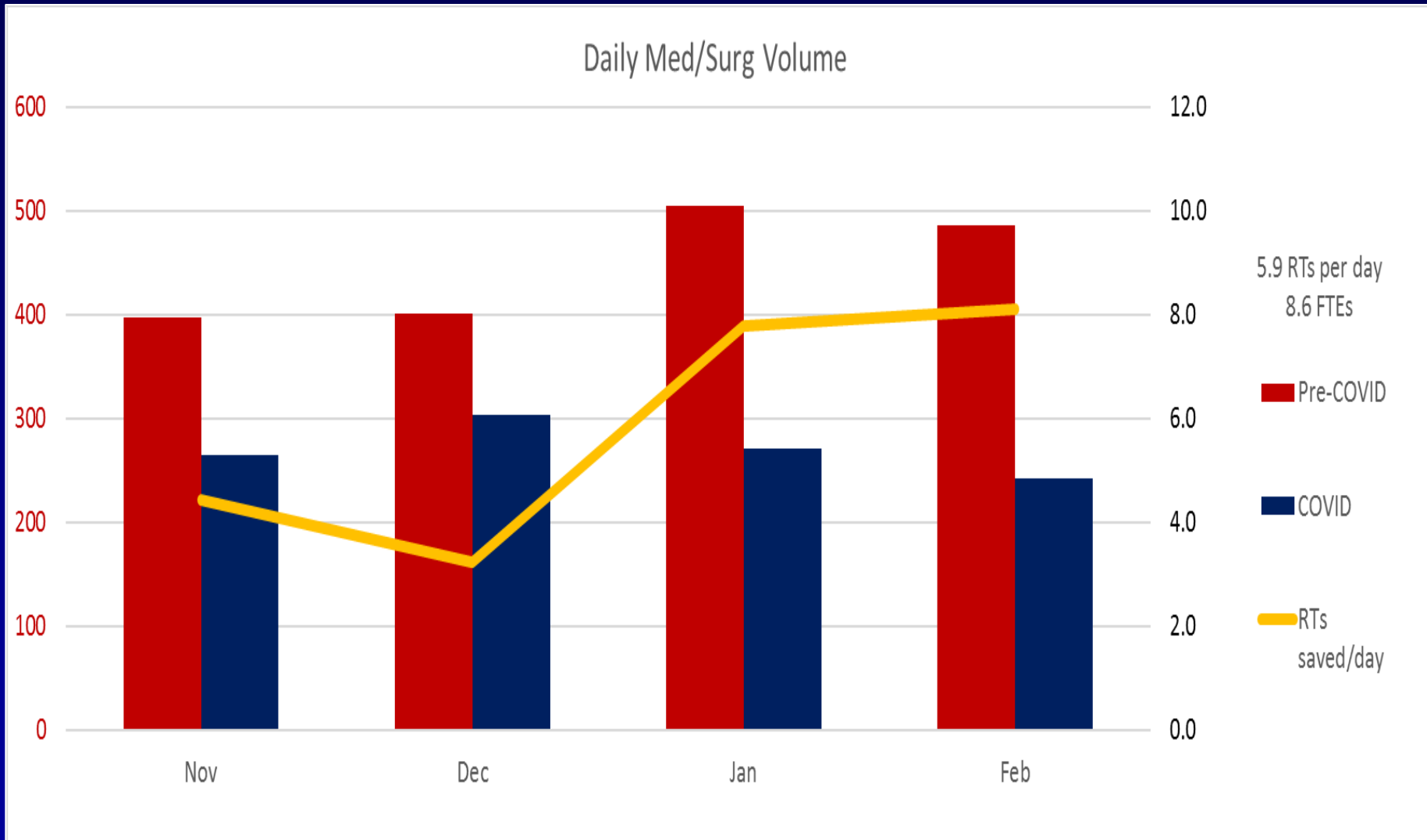
Methods: 144 matched cohorts - cardiac, thoracic or upper abdominal surgery patients; IS only (control) vs Aerobika-IS

Results at 30-days post D/C:

- Patients in the Aerobika OPEP cohort has fewer all-cause rehospitalizations (13.9 vs. 22.9%; $p=0.042$);
- Patients in the Aerobika OPEP cohort had a shorter mean length of stay (1.25 ± 4.04 days vs. 2.60 ± 8.24 days; $p=0.047$);
- Patients in the Aerobika OPEP cohort had lower total unadjusted mean all-cause cost per patient ($\$3670 \pm \$13,894$ vs. $\$13,775 \pm \$84,238$; $p=0.057$).

Identification and Elimination of Non-Value Added Work to Optimize Labor During the COVID-19 Pandemic

Pavlichko M , Andrea Tilahun A et.al., Respiratory Care October 2021, 66 (Suppl 10) 3602208



Asymptomatic Patients with Airflow Limitation are at Higher Risk of Postoperative Pulmonary Complications After Lung Surgeries: An Ambispective Cohort Study

Wang Y, Yin X et. al., International Journal of Chronic Obstructive Pulmonary Disease 2021:16 3465–3475

- Purpose: Elucidate whether there is a difference in the prevalence and prognosis of postoperative pulmonary complications between asymptomatic patients with newly diagnosed AFL and the normal population undergoing lung surgeries.
- Results:
 - 535 asymptomatic subjects were recruited and 126 subjects (11.4%) were spirometrically diagnosed as AFL. The incidence of PPCs was significantly higher in the newly diagnosed AFL group than in the normal population (28.6%VS 14.4%, $P < 0.001$), especially in the $FEV1/FVC \leq 65\%$ group ($P < 0.001$)
 - These patients were at a higher risk of ICU admissions ($P < 0.001$) and 90-day hospital readmissions secondary to PPCs ($P < 0.001$).
 - No significant differences were found in the overall, in-hospital and 90-day mortality between the AFL group and the normal group ($P > 0.05$).

Respiratory Therapist Job Perceptions: The Impact of Protocol Use

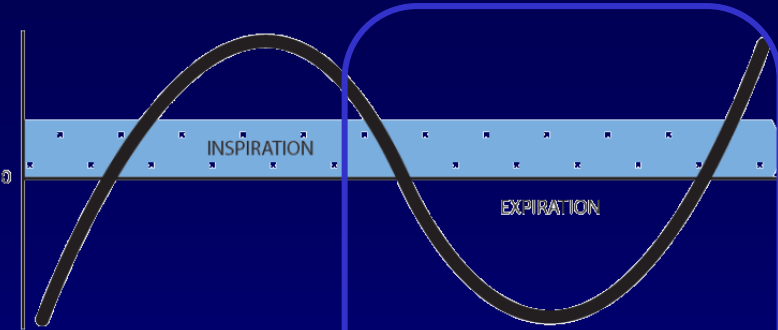
Metcalf AY, Stoller JK, Respiratory Care; November 2015

Use of respiratory care protocols favorably affects RTs perceptions of **job satisfaction, turnover intention, and job stress.**

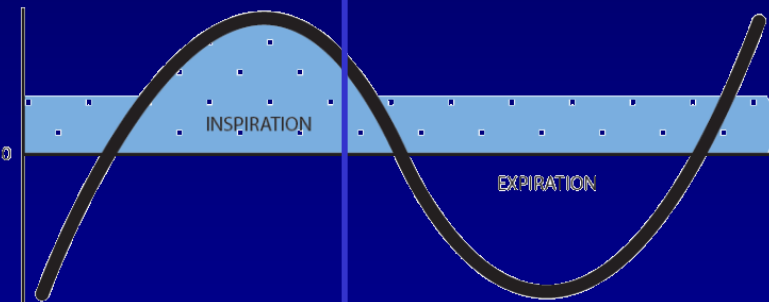


Keeping RTs Safe: Fugitive Emissions

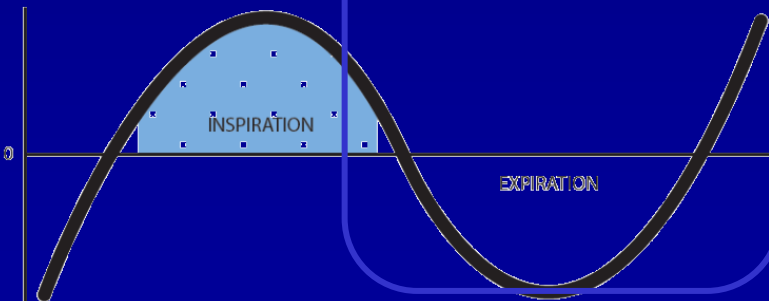
Constant Output



Breath Enhanced



Breath Actuated



Consistent Approach to Asthma Education Reduces Hospital Readmission Rates

Issue

- High readmission rates
- Lack of adherence to treatment regimen

Action

- Interdisciplinary AAP with staff training
- Pharmacy labelling of MDI/VHC
- Patient/family education utilizing the Doc Monaghan packets

Results

At 7 days

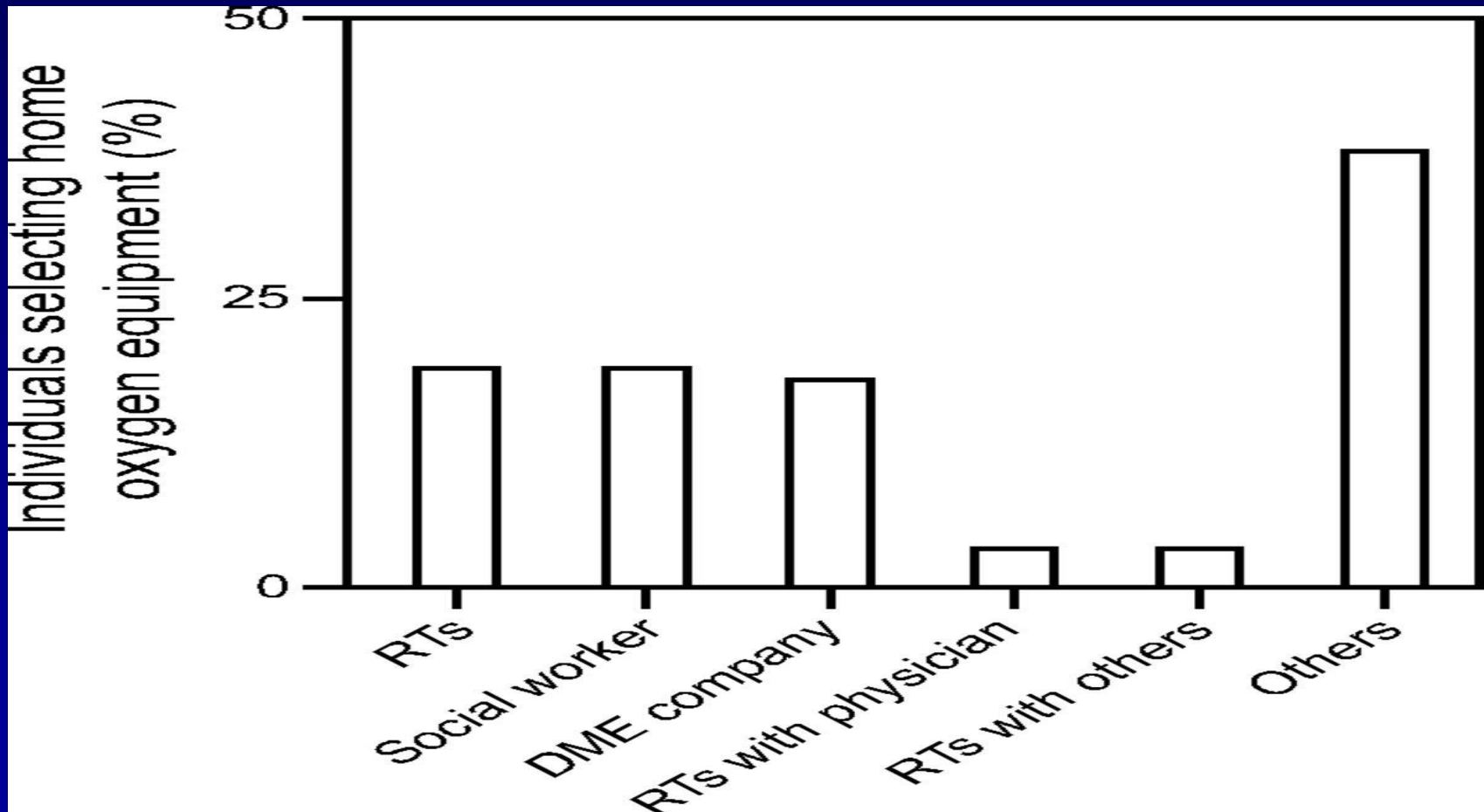
- Decreased Readmission rate from 15% to 0
- ED visits decreased from 15% to 0
- Decreased pts returning to clinic for albuterol from 30% to 10%

At 30 days

- Decreased Readmission rate from 38% to 0
- ED visits decreased from 18% to 0
- Decreased pts returning to clinic for albuterol from 20% to 15%

Home Oxygen Evaluation by Respiratory Therapists in Patients Hospitalized for COPD Exacerbations: The RiOTTO Study

Tan I-Yui, Vines, D et. al. Care Feb 2021 Vol 66 No 2



Personalization of Device Therapy- Prime Time for Peak Inspiratory Flow Rate

Loh C, Ohar J, (Ed.). Journal of the COPD Foundation; Vol 4, Num 3: 2017

- 2017 GOLD guidelines: choice of inhaler device has to be individually tailored and depends on access, cost, prescriber, and patient's ability and preference
- For DPI, adequate inspiratory effort is critical to disaggregate particles within the inhaler into fine particles
- Patients with suboptimal inspiratory flow rates had increased readmission rates for COPD and fewer days to COPD readmission compared to those with optimal PIFR
- Patients discharged on nebulized bronchodilators had more days to readmission compared to those using DPI.

Pulmonary Rehabilitation Reduces COPD Hospitalizations

Nguyen HW, Harrington A, et. al. Journal of Cardiopulmonary
Rehabilitation and Prevention Sept/Oct 2015

Study: Admissions in 558 pts in the year before/after PR

Results:

- Participants' 6-minute walk test distance improved ~ 43 meters
- St. George's Respiratory Questionnaire total score dropped 9.6 points
- ED use remained same (52% and 54%)
- Admissions reduced 20% in 12 months post program
- Patients who declined PR for logistical reasons had a 40% higher risk of hospitalization than PR participants.

The Impact of a Home Respiratory Therapist to Reduce 30-day Readmission Rates for Exacerbation of Chronic Obstructive Lung Disease

RESPCARE 2022; 10.4187/respcare.08125

Methods

- 1093 participants in study, with 659 in pre-intervention group and 435 participants in the post-intervention group. Readmission rates were adjusted for age, gender, race, ethnicity, and sex status

Results

- Readmissions within 30 days decreased from 22.3% to 12.2% (p<0.001)
- Readmissions within 60 days decreased from 33.9% to 12% (p<0.001)
- Readmissions within 90 days decreased from 43.5% to 13.1% (p<0.001)

Inpatient Asthma Education Consults Prevents Revisits for Asthma Exacerbations

Baker J, Michalek K et. al. Respiratory Care October 2020, 65 (Suppl 10) 3439899.

Methods

- Inpatient Asthma Education Consult service (IAEC) created with team of certified asthma educators
- Patients (55) selected with new/existing asthma dx admitted, to PICU, ≥ 2 hospitalizations or ED/UC visits in prior 12 months
- IAEC 30 minutes F2F education, medications, and asthma plan and F/U with resources and address barriers to medication adherence and provider follow-up; facilitate post DC visit with Pulmonary or Allergy specialist.

Results

- Pre-consult: 100% of pts had at least 1 hospital and/or ED/UC visit prior year
- Post-consult: 38% of pts revisited the hospital

Early Mobilization Reduces Duration of Mechanical Ventilation and Intensive Care Unit Stay in Patients With Acute Respiratory Failure

Lai, Chou et. al. Arch Phys Med Rehabil. May 2017

Results

- After protocol group patients had shorter MV durations (4.7d vs 7.5d; $P < .001$) and ICU stays (6.9d vs 9.9d; $P = .001$) than did before protocol group patients.
- Early mobilization was negatively associated with the duration of MV ($\beta = -.269$; $P < .002$;
- The risk of MV for ≥ 7 days was lower in patients who underwent early mobilization (odds ratio, .082; 95% CI, .021-.311)

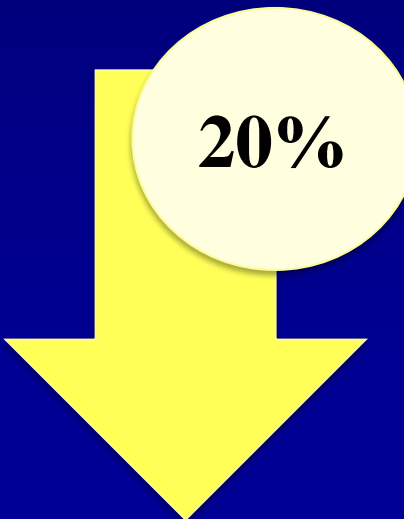
Reducing Total Costs of Aerosolized Medication Delivery Using the AeroEclipse II Breath Actuated Nebulizer

Forsyth Medical Center/38 bed Pulmonary Unit

AeroEclipse BAN Nebulizer 2008 vs. SVN 2007 SVN

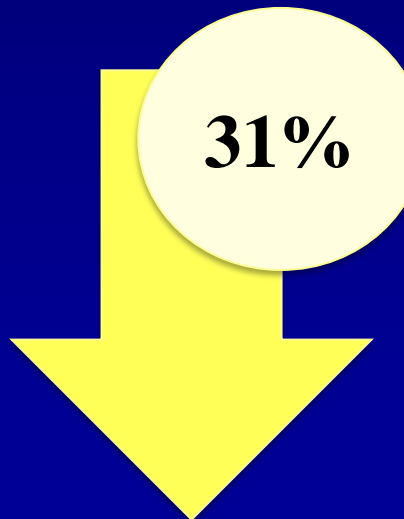
Total Cost Reduction

20%



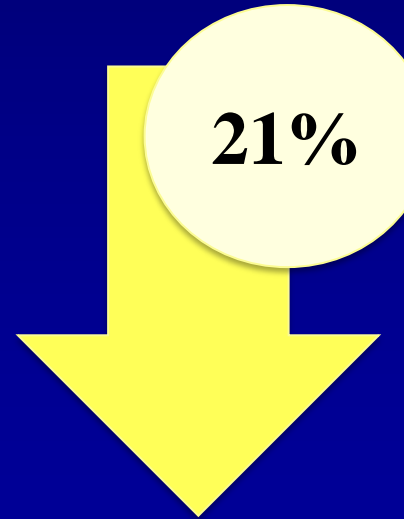
RT Time/Day

31%



Time between Tx's

21%

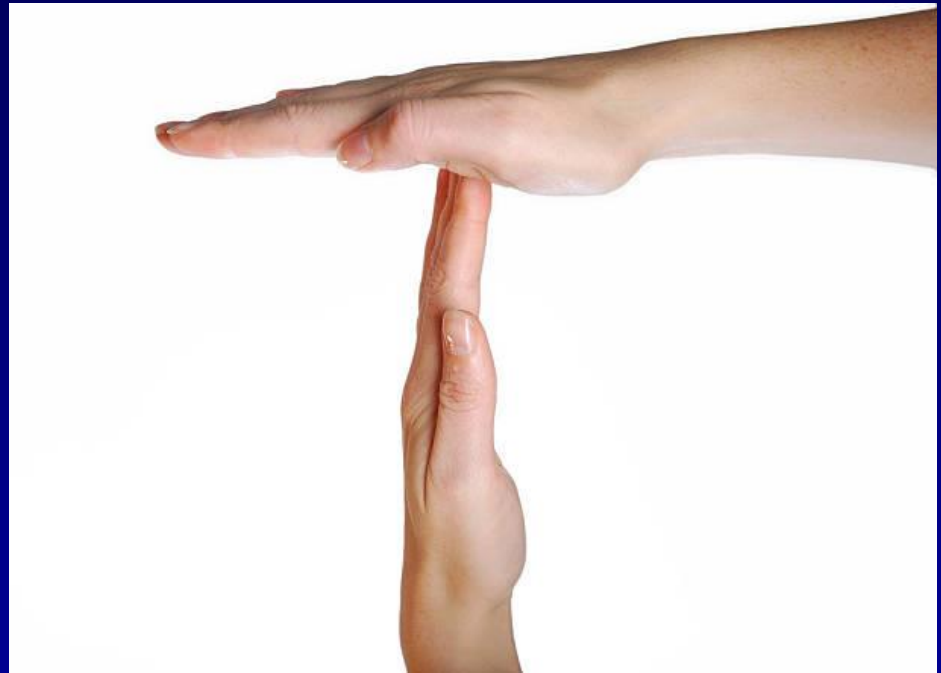


Dispensing inhalers to patients with chronic obstructive pulmonary disease on hospital discharge: Effects on prescription filling and readmission

Blee J, Ryan K. et. al. American Journal of Health-System Pharmacy July 2015, 72 (14)

- Issue: COPD pts not filling their Rx after D/C
- Intervention: D/C with inhaler(s) used during hospital stay
- Results:
 - Improved medication adherence
 - > 50% reduction in 30-day readmissions ($p = 0.0016$)
 - >50% reduction in 60-day readmissions ($p = 0.0056$)

Words
matter
because
people
matter



Let's stop calling our services 'floor therapy'

This is 'Floor Therapy'



While we're at it.....



A Respiratory Therapist Disease Management Program for Subjects Hospitalized With COPD

Methods

- 428 Subjects
- Combined non-hospitalized ED visits & COPD exacerbation readmissions during 6-month follow-up

Results

Intervention Group:

- Decreased COPD readmissions (20.1% vs 28.5%)
- Decreased Median hospital stay (5 days vs 8 days)
- Decreased total inpatient days (306 days vs 523 days)
 - ICU days (17 days vs 53 days)

A Real-World Study of 30-Day Exacerbation Outcomes in Chronic Obstructive Pulmonary Disease (COPD) Patients Managed with Aerobika OPEP

Burudpakdee C, Seetasith A, et. al. Pulm Ther, January 2017

Results at 30 days:

- 18.5% of subjects using the Aerobika OPEP vs. 25.7% of controls had a moderate-to-severe exacerbation ($p = 0.014$)
- 13.8% of subjects with Aerobika OPEP vs. 19.0% of controls had a severe exacerbation ($p = 0.046$)
- Per-patient cost of moderate-to-severe exacerbations in the Aerobika OPEP group was 34% lower ($p = 0.012$) than the control group.

Summary: The 5 Rights



Right care (evidence-based)



Right place (inpatient, outpatient, clinic, office)



Right quality (connect to outcomes)

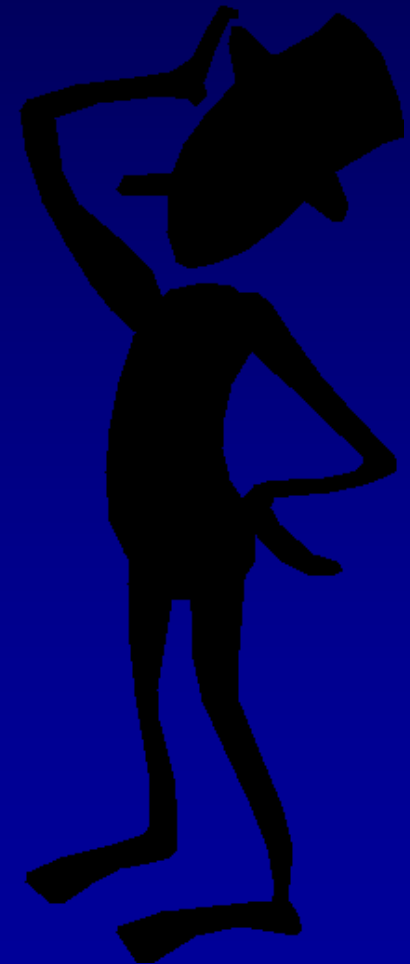


Right cost (not acquisition cost; linked to value)



Right provider (only RTs are trained and competency tested to delivery respiratory care)

Time for reflection





IPPB

Continuing our quest to overinflate good alveoli

DIY.DESPAIR.COM



Sugarloaf Conference 1974







POST-OP CPT

A study showed 100 post-op patients got CPT & they all recovered eventually

Not 'Triple Therapy'



NDC 0054-3025-02


3 x 30 mL Vials

10%
ACETYLCYSTEINE
Solution, USP

For Inhalation (Mucolytic Agent)
or Oral Administration
(Acetaminophen Antidote)

NOT FOR INJECTION

$\frac{1}{2}$ only

Mfd. for  **Roxane**
LABORATORIES, INC.
Cincinnati, Ohio 45228







A use for IS?





Move non-evidence-based services to our rear view mirror



OPPORTUNITY IS NOWHERE

OPPORTUNITY IS NOW HERE !

