

Pulmonary, Cardiovascular and Musculo-Skeletal Rehabilitation of the Post-COVID-19 Recovery Patient

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MEDICAL CENTER

Expert care with a personal touch

Overview of Discussion

- Effectiveness of Rehab in treating Post-COVID-19
- Review history of Post-COVID-19 Recovery Program
- Services provided
- Program staffing
- Overview of program
- Case studies
- Outcomes
- How to access our program

Post-COVID-19 Rehab: **Why Rehab?**

Is there evidence of it's effectiveness?

- Too early to tell for post-COVID-19
 - Early evidence says it does (*J Frailty Aging 2021; Feb 7*)
 - However, large, well controlled studies are lacking
- Nonetheless, most Post COVID -19 treatment protocols recommend rehabilitation, particularly programs that are exercise focused
- The basis:
 - *“Overwhelming evidence exist that exercise produces short, middle and long term health benefits that prevent, delay, mitigate and even reverse a large number of metabolic, pulmonary, cardiovascular, neurocognitive, inflammatory, rheumatic and musculoskeletal disease.” (In J Environ Res Public Health 2021; May 18: 5329)*
- Therefore, exercised based rehabilitation may be effective in treating Post COVID-19

Post-COVID-19 Recovery: **Program History**

July 2020

- Initial Rx of post-COVID outpatients:
- 8 PVHMC Associates
- Programming limited to Pulmonary Rehab

December 2020

- Pulmonary Rehab closed to support inpatient COVID surge

January 2021

- Training of PT staff to manage post-COVID patients

February 2021

- Pulmonary Rehab reopens

March 2021 to now

- All 5 Rehab services involved
- Pulmonary Rehab
- Cardiac Rehab
- Physical Therapy
- Occupational Therapy
- Speech and Language Therapy

Post-COVID-19 Rehab: **Services We Provide**

Inability to assume former levels of activity due to:

	Signs/Symptoms	
Pulmonary Rehab	Shortness of breath Persistent cough	Medication management Oxygen management
Physical Therapy	General weakness/deconditioning Orthopedic pain/aches	Balance issues Dizziness (vestibular)
Cardiac Rehab	Irregular HR response "POTS"	
Speech	Swallowing Brain fog Communication	
Occupational Therapy	ADL deficits	
Psychology (by referral) Support Group Workshops	Depression Anxiety	

Post-COVID-19 Rehab: **Staffing/Location**

- **Team leads**
 - 1 Pulmonary Rehab Therapist
 - 1 Physical Therapist
- **Primary support team**
 - 1-2 Physical Therapist Assistants
 - 1-2 Aides
- **Additional support available as needed per patient**
 - Cardiac Rehab Exercise Physiologists
 - Occupational Therapists
 - Speech and Language Therapists
- **Location**
 - Rehabilitation Services Department
PVHMC Outpatient Pavilion (OPP)



Post-COVID-19 Recovery: **Volume**

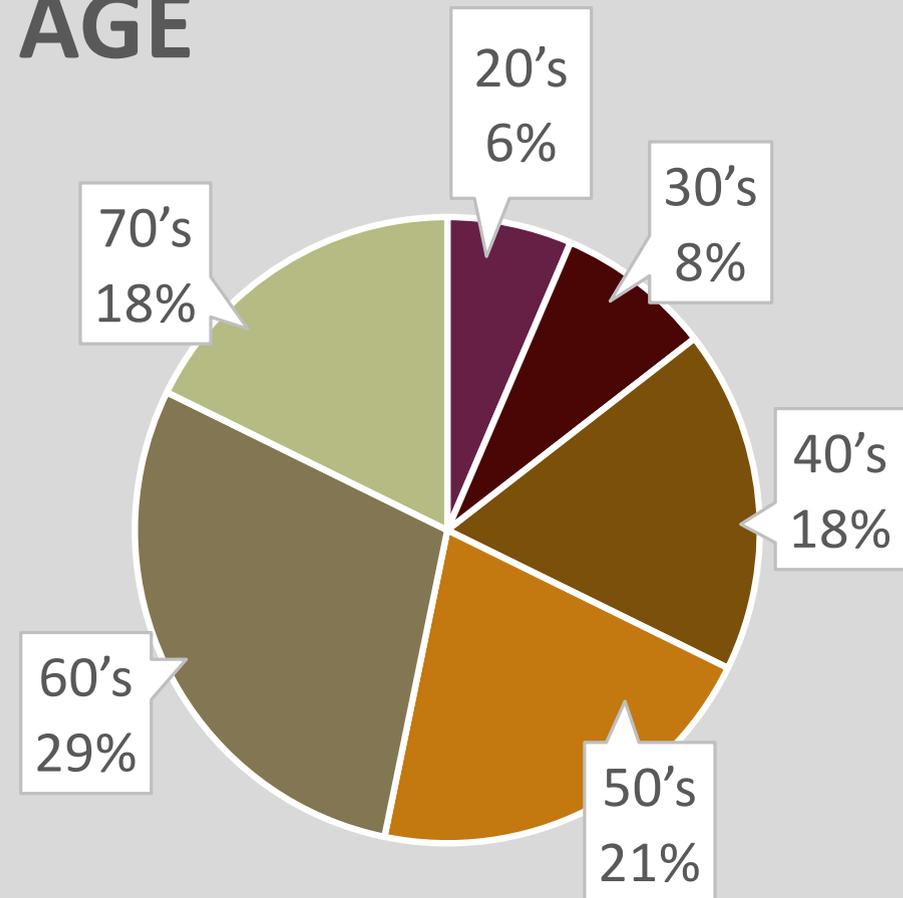
March 2020 – April 2022

	Total Patients	Average Pts/Day	Duration of Care
Pulmonary Rehab	600+	40	24-36 visits
Physical Therapy	160	10	10-12 visits
	760+		

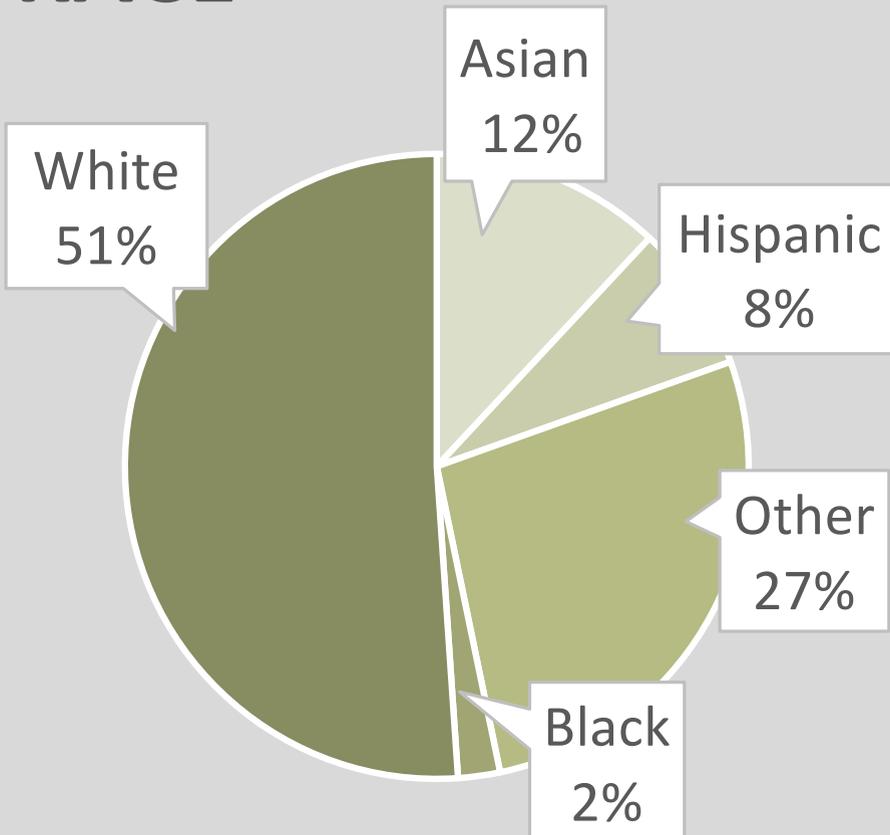
Post-COVID-19 Recovery: **Demographics**

- Over 50% of patients are under 60 years old
- Less than 25% were hospitalized

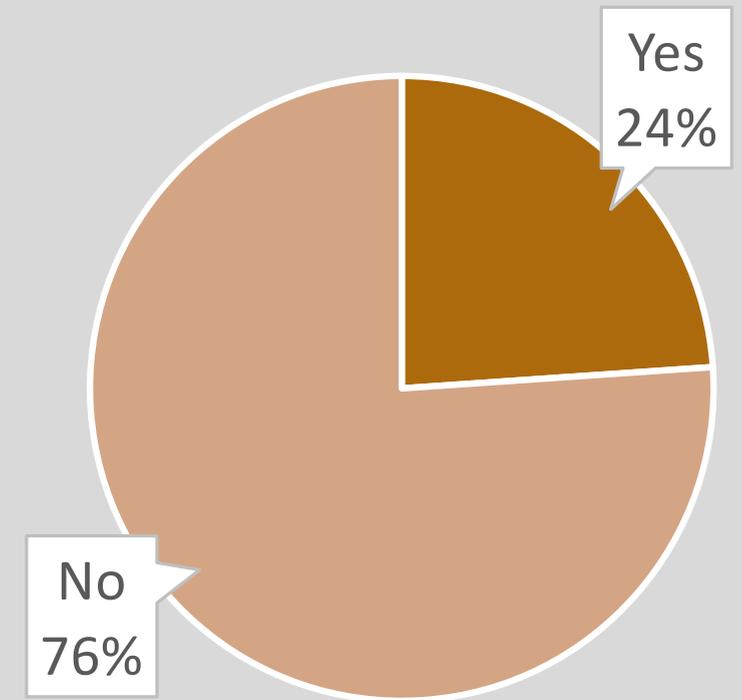
AGE



RACE



HOSPITALIZED



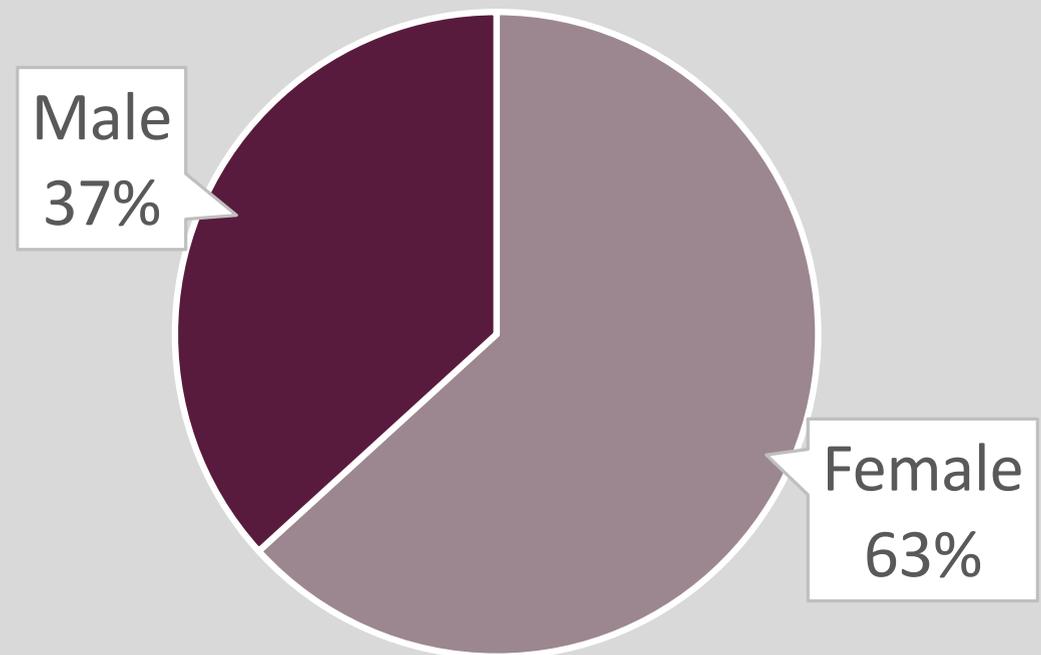
Post-COVID-19 Recovery: **Demographics**

- Most significant difference is gender

GENDER – Pulmonary Rehab

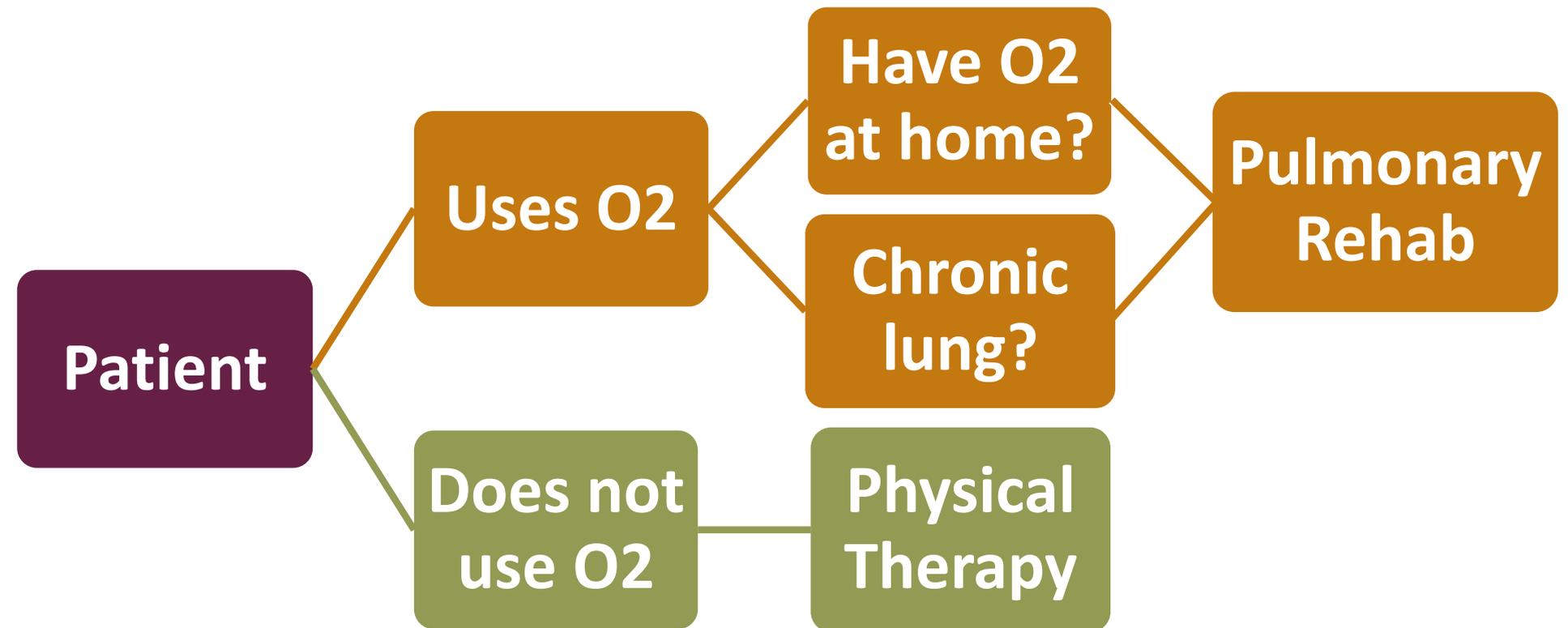


GENDER – Physical Therapy



Post-COVID-19 Rehab: **Triage**

- Telephone screen when scheduling first appointment
- Triage patient to either Pulmonary Rehab or Physical Therapy



Post-COVID-19 Rehab: **Assessment**

Subjective:	Objective:
COVID history	O2 sats, HR/tach screen, BP, lung sounds
Complaints, functional deficits	Height/weight
Diagnostic tests Specialty consults	Rate of Perceived Exertion (RPE) Borg Scale of Dyspnea (RPD)
Past medical history, co-morbidities	Incentive Spirometer
Medications, inhaler, oxygen use	Pulmonary function screen
Functional deficits	6-minute Walk Test to determine exercise level – <i>If needed:</i> Cardiac monitor to rule out POTS
	Multidimensional Assessment of Fatigue Scale (MAF)
	Hospital Anxiety and Depression Scale (HADS)

Post-COVID-19 Rehab: **Treatment**

Daily Treatment

- **Assessment**
 - Pain, emotional state, symptoms
 - Previous treatment tolerance
 - Medication issues,
 - Weight, BP, HR, O2 sat, sugar levels, cardiac monitor
 - *If diabetic: Sugar*
- **Intervention**
 - Individualized exercise
 - Patient education



Post-COVID-19 Rehab: **Expertise**



Tammy Magill, RRT, RCP, PD-E, PR-C

– *Specialty Program Coordinator, Pulmonary Rehab*



Stacey Leath, PT, MS

– *Specialty Program Coordinator, Physical Therapy*

Both therapists have years of experience treating *chronic* pulmonary rehab patients and physical therapy patients prior to COVID-19

Post-COVID-19 Rehab: **Case Study – Physical Therapy**

51 yr old female

(+) COVID: 1/7/21 — Hospitalized: 5 days — Home: O2 2L (PRN)

SUBJECTIVE ASSESSMENT

- Past medical history:
 - High cholesterol
 - Recently diagnosed with hypertension
- Complaints:
 - (+) cough, fatigue, SOB
- Prior level of function:
 - Patient worked in nail salon
 - Currently off work due to COVID
- Activity levels:
 - Walked 3 miles per day
 - Ran 10 mi. 1x per week
 - Weight-lifting

OBJECTIVE ASSESSMENT

- Walks 50 ft, sits down w/labored breathing
- Normal pulmonary function screen
- O2 sat 98%, HR 57
- BP 150/74
- Lungs clear
- 6-minute walk test:
 - 300 ft w/one 30-sec rest stop
 - O2 sat 96%
 - Post walk: RPE 7, RPD 7

Post-COVID-19 Rehab: **Case Study – Physical Therapy (cont.)**

Frequency 1-2x wk for 10 visits (2 months)

4th visit:

- Home – Less coughing, SOB, exercises 30 min. daily
- Clinic – 50 min cardio and weight training

6th visit:

- Home – 3 mile hike (1 hr)
- Clinic – 12” step ups w/weighted ball, light jogging, UE/LE weight training

8th visit:

- Home – Jogging 10 min.
- Clinic – 1 hr. cardio, UE/LE strengthening and core
- O2 97%, max HR 95
- RPE 5, RPD 5

10th visit: Discharge

- Walking 4 mi daily
- Jogging 15 min. and hiking
- Sleeping through the night
- Climbing stairs
- BP 116/66
- Improved 6-min. walk by 50%
- RPE 0, RPD 1
- Does not require O2@ at home

Back to work @ 4 months

TODAY:

- Running 3-5 miles 3x/wk
- Walking daily

Post-COVID-19 Rehab: **Case Study – Pulmonary Rehab**

40 year old construction worker

- No prior history of co-morbid issues
- Admitted to Loma Linda 1/2021
 - Progressive respiratory failure and hypoxia
 - Intubated trach and G-Tube and placed on ECMO 2/1/2021 x 2 mo
- Transported on ECMO, intubated to Cedars-Sinai 4/9/2021 for transplant list
- Lung transplant 4/18/2021
- Extubated 5/13/2021 – trach removed
- Admitted to Post COVID rehab 6/17/2021.
 - Unable to speak normally (trach)
 - Referred to Speech Therapy
 - FEV1 1.44
 - 6-minute walk 750 ft with 3 rest periods
 - O2 sat 96% RA
 - Muscle weakness due to atrophy
- 36 sessions of pulmonary rehab showed:
 - Improvement in stamina and endurance – able to walk on treadmill 20 minutes @ 1.8 mph
 - Step up with 4 lb ball x 5 minutes (2 months)
 - Mild shortness of breath up stairs
 - 1200 ft at discharge 12/30/2021 (60% improvement)
 - G-Tube removed 8/26/2021
 - Returned to work 1/1/2022

Post-COVID-19 Rehab: **Outcomes**

POSITIVE RESULTS!

- Better breathing
- Improvement in physical endurance and stamina
- Reduced anxiety and depression
- Increased walking time
- Resuming daily activities
- Returning to work
- Some join Wellness



“It’s working. I can now shower, cook and clean – the improvements are noticeable.”

Do they all get better?

- Most do
- Many learn to adjust to their “new normal”
- Patients come to us scared, crying – we give them (some) control of their lives
- Many enroll in our Support Group

Takeaway

Exercise-based program – To be successful, the patient needs to be committed and have a desire to exercise

Post-COVID-19 Recovery Program: **Support Group**

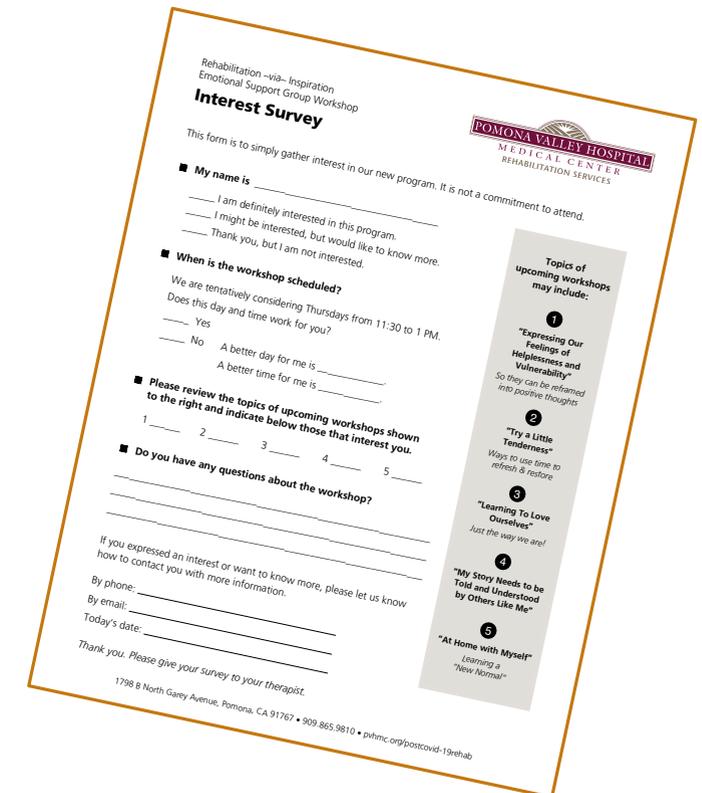
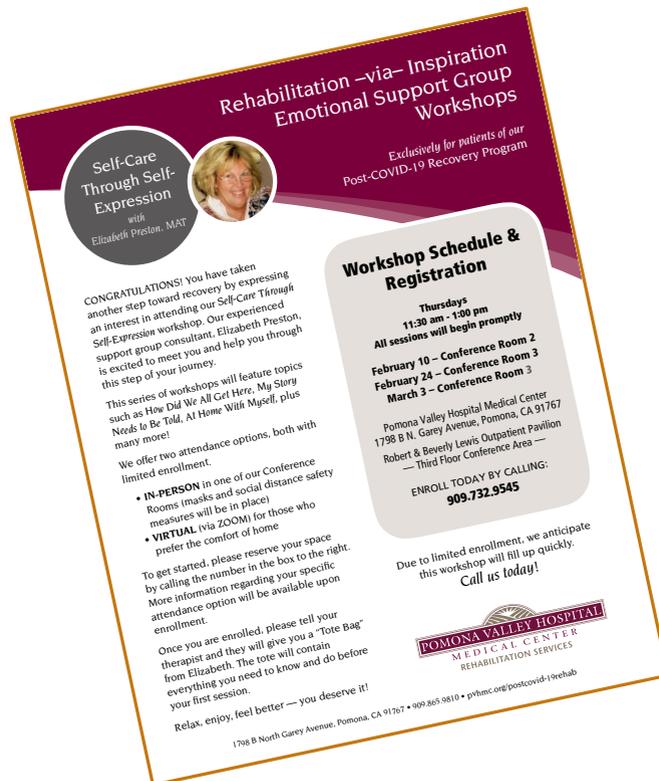
Self-Care Through Self-Expression Workshops

- Weekly support group meets weekly using a hybrid format (in-person and virtual)
- Facilitator with over 17 years of experience – Elizabeth A. Preston, MAT
 - She has led workshops at PVHMC’s Cancer Care and Heart and Vascular Centers
 - Specially trained in a process designed to reduce stress and manage fatigue
- Interested patients receive a questionnaire at the first visit, followed by registration information

- Topics are different each week and have included:

- *How Did We All Get Here*
- *My Story Needs to Be Told*
- *Strategies for Working With Brain Fog*
- *Learning to Love Ourselves, Inflammation and All*
- *Reviewing How Really Strong We Are*

- Anonymous feedback shows extremely positive comments and high scores
- Currently exclusive to our patients as an optional component to their Post-COVID-19 Recovery care



How Can We Help You Find Us

LOCATION —

Rehab Services Department at PVHMC

First floor of the Robert and Beverly Lewis Outpatient Pavilion (OPP)

REFERRALS —

Via inpatient orders

Via written referral from your office ... **Fax 909.469.2111**

QUESTIONS —

Call our OPP clinic ... **909.865.9810**

Ask for Tammy, Stacey or Joe

MORE INFORMATION in English and Spanish —

Visit us online @ **www.pvhmc.org/postcovid-19rehab**

The image shows two overlapping brochures for the Post-COVID-19 Recovery Program at Pomona Valley Hospital Medical Center. The top brochure is in English and the bottom one is in Spanish. Both brochures feature the hospital's logo and tagline: "Expert care with a personal touch" (English) and "Atención experta con un toque personal" (Spanish). The English brochure includes sections for "Post-COVID-19 Recovery Program", "How to Get Started", "From the Hospital", "From the Community", "We can help!", and "Pulmonary Rehabilitation", "Cardiac Rehabilitation", and "Speech and Language Therapy". The Spanish brochure includes sections for "Programa de Recuperación Posterior a COVID-19", "Cómo iniciar la recuperación posterior a COVID-19", "Desde el hospital:", "Desde la comunidad:", "¡Le podemos ayudar!", and "Rehabilitación pulmonar", "Rehabilitación cardíaca", "Terapia del habla y del lenguaje", and "Terapia ocupacional". Both brochures also feature a QR code and contact information: "Call us today for more information 909.865.9810" (English) and "Haga una cita - 909.865.9810" (Spanish). A testimonial at the bottom of the Spanish brochure reads: "¡El hospital me ayudó a ganar la batalla por mi vida y ahora este programa me brinda la atención experta que necesito para continuar con mi recuperación!" attributed to Denalonor Bustamante.

Questions?

Thank You



Expert care with a personal touch