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# Pragmatic Innovations in Post-Acute and Long-Term Care Medicine

*Feasible new, practical products or approaches intended to improve outcomes or processes in post-acute or long-term care*

## How a Barcelona Post-Acute Facility became a Referral Center for Comprehensive Management of Subacute Patients With COVID-19



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### ABSTRACT

The COVID-19 pandemic's greatest impact is among older adults. Management of the situation requires a systemic response, and post-acute care (PAC) can provide an adequate mix of active treatment, management of associated geriatric syndromes and palliative care, both in the acute phase, and in post-COVID-19 recovery. In the region of Catalonia, Spain, selected PAC centers have become sites to treat older patients with COVID-19. Referrals come from the emergency department or COVID-19 wards of the acute reference hospitals, nursing homes, or private homes. We critically review the actions taken by Parc Sanitari Pere Virgili, a PAC facility in Barcelona, to manage the pandemic, including its administration, health care, communication, psychological support, and ethical frameworks. We believe that the strategies we used and the lessons we learned can be useful for other sites and countries where similar adaptation of existing facilities may be implemented.

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**Keywords:** COVID-19, post-acute care, older adults, geriatrics, geriatric syndromes, palliative care

### Problem/Significance

Older adults are most affected by the COVID-19 pandemic.<sup>1–4</sup> Spain, with an exceptionally large aging population, has had one of the worst outbreaks worldwide.<sup>5</sup> The management of COVID-19 in older persons presents specific challenges:

- Its presentation can be atypical,<sup>6</sup> and treatment options complex due to multimorbidity, polypharmacy, and drug interactions.<sup>7</sup>
- Delirium and immobility are highly prevalent<sup>8,9</sup> and difficult to manage due to patients' isolation, particularly in people with dementia.<sup>10,11</sup>
- Overwhelmed health care systems may reduce priority of older adults based on age alone; conversely, if advanced care planning is not available, overtreatment is a risk.<sup>12</sup>
- Social resources in the community can be limited, and discharge to domestic and nursing homes<sup>13</sup> difficult.

### Innovation

The pandemic requires a systemic response. Combined with the intensive resources of acute care, and the “gate keeping” role of primary care, geriatric post-acute care (PAC) can be a key resource.

1. PAC offers an alternative to conventional hospitalization, reducing burden on acute care.
2. It can provide active treatment for COVID-19, rehabilitation and palliative care, flexibly prioritizing goals depending on the individual “situational diagnosis”,<sup>14</sup> providing expertise on complex needs and geriatric management.
3. It may better isolate frail persons.<sup>15</sup>

The region of Catalonia, Spain, has a widespread network of PAC, including inpatient care, outpatient care, and hospital-at-home, providing integrated care for older adults with complex needs. Inpatient services, mainly managed by specialists in geriatrics, are similar to high-performing skilled nursing facilities in the United States, with the constant presence of a physician.<sup>16</sup> They usually combine care for older adults with acute exacerbations of chronic conditions,<sup>17</sup> need for geriatric rehabilitation,<sup>18,19</sup> dementia and palliative care,<sup>20</sup> with goals to avoid admission, if possible, and to discharge only once appropriate.

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We describe the actions implemented in a large, public, PAC facility in Barcelona, assigned as a COVID-19 facility for older adults. Our experience and challenges may represent a benchmark for other countries.

## Implementation and Evaluation

Parc Sanitari Pere Virgili (PSPV) is one of the largest PAC facilities in Catalonia, with 350 beds plus outpatient resources (rehabilitation day hospital and hospital-at-home teams), dedicated to acute care of decompensated chronic multimorbid patients, geriatric rehabilitation, palliative care, and comprehensive care for dementia. Staffing is multiprofessional, including 24-hour medical care (Table 1). The facility receives approximately 75% of admissions directly from the emergency department (ED) or wards of 2 major acute university hospitals (Vall d'Hebron and Clinic hospitals, serving approximately 900,000 inhabitants), and 25% from primary care.

PSPV was adapted to admit acutely ill patients in response to the pandemic. Medical staffing was expanded by creating mixed teams combining geriatricians from PSPV with other specialists (infectious diseases, oncology) from Vall d'Hebron University Hospital. Nursing staff ratios were increased through internal reorganization (Table 1). Final capacity for patients with COVID-19 was 167 beds of 350. Referral pathways (Figure 1) included direct admissions from ED or COVID-19 acute wards, or from private homes or nursing homes. From March 10 to May 28, 2020, we attended 410 patients with COVID-19 (mean age = 81.8 years, range 42–99, 48% older than 84 years, 55% women). Referral sources were ED (23.2%, n = 95), acute COVID-19 wards (32.9%, n = 135), and nursing homes or home (11.7%, n = 48); 32.2% (n = 132) were already inpatients or very recently referred by the acute hospitals for other reasons when they developed symptoms.

The main actions, progressively implemented from February 27 (first case in Catalonia), are summarized in Table 2, and include the following:

- *General coordination* through a COVID-19 committee composed of members of the board of directors and clinical leaders, meeting daily until June 2020.
- *COVID-19 transmission control*: (1) fast-tracked home discharge of existing patients without suspicious symptoms, to increase capacity and protect them from transmission; (2) accelerated screening of patients and staff through polymerase chain reaction (PCR) tests (naso-pharyngeal samples), even in cases of atypical symptoms<sup>6,21</sup>; (3) instituted lockdown to external visitors; (4) interrupted nonessential services (outpatients and

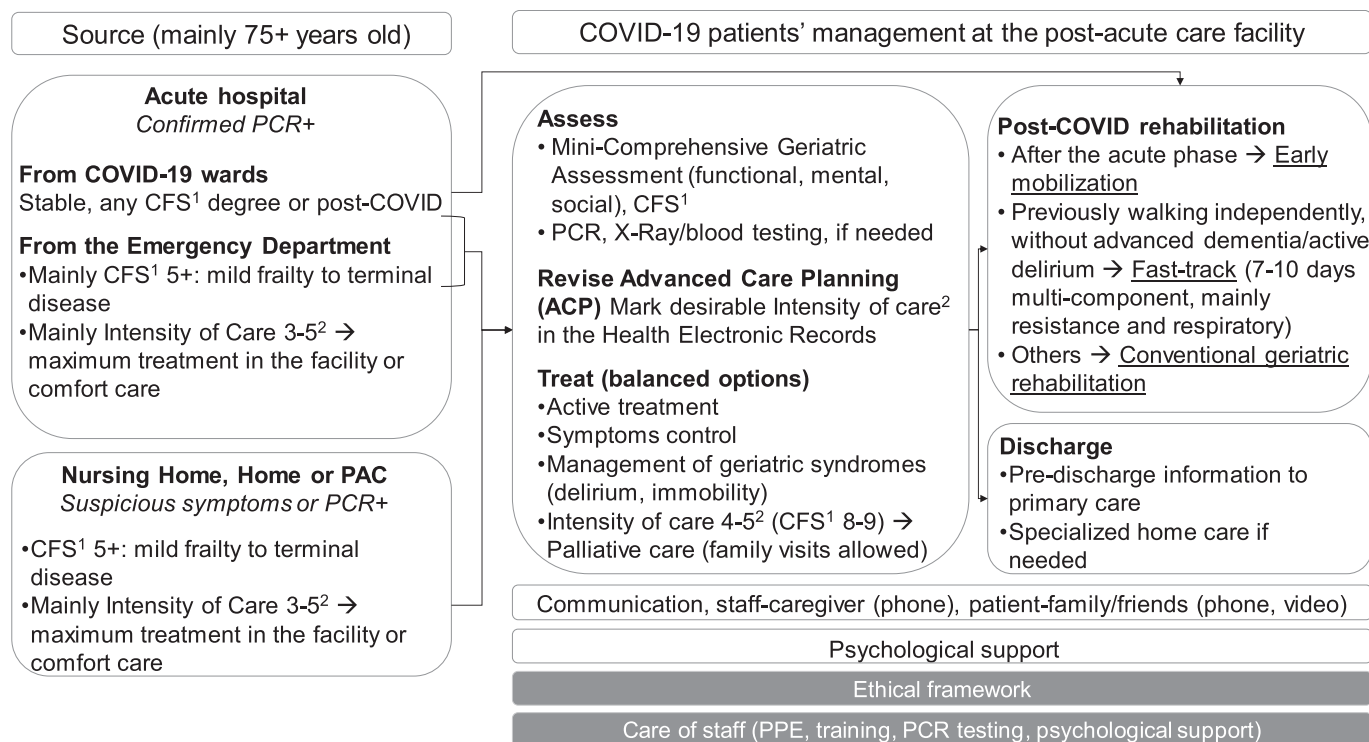
day hospital), while hospital-at-home remained active providing care and rehabilitation for patients discharged from the hospitals and attending patients with COVID-19 in nursing homes; (5) allocated COVID-19–positive wards and non–COVID-19 wards, each with designated staff and adequate personal protection equipment (PPE), with restricted access to common spaces and rehabilitation performed in the patient's room.

- *Staff measures* included continuous training on PPE and personal protection (patients were required to wear a facial mask during staff activities), and “clean zones” for rest periods. Of 50 physicians providing care during the first month, 9 were infected, none from COVID-19 wards (3 reported contact with COVID-19 cases out of the hospital).
- *Protocols for treatment, geriatric management, and palliation* (Figure 1) hinged on initial brief Comprehensive Geriatric Assessment<sup>22</sup> as a basis to rate the Clinical Frailty Scale,<sup>23</sup> a rapid and visual prognostic tool. This helped to establish advanced care planning with reasonable therapeutic effort for each patient.<sup>24–26</sup> Acute care treatment of COVID-19 was balanced with palliative and geriatric care, mainly oriented toward preventing and managing delirium using non-pharmacological interventions (eg, reorientation, presentation of staff names on the PPE, early mobilization) or adapted pharmacological treatment. Physical therapy and nursing staff instigated early mobilization of clinically stable patients.
- *Psychological care of patients, family, caregivers, and staff* anticipated potential anxiety in patients and families, and supported bereavement. This was especially complex due to visiting restrictions and deaths within patients' families. Health care professionals and other staff were vulnerable to stress from the intense workload and personal risks.<sup>27</sup>
- *Communication* and quarantine-compliant visiting arrangements were accomplished through telephone/video calls between staff and family and by regular videoconferences among the multidisciplinary team, patients, and their family (averaging 7 per person, up to May 28, 2020). Waivers for visitors to end-of-life patients or those with severe hyperactive delirium were established.
- *Promotion of post-COVID rehabilitation* (Figure 1): physical therapists initially worked to reduce immobility and subsequently, provided adapted multicomponent therapeutic exercise<sup>28</sup> or conventional geriatric rehabilitation after COVID-19.

**Table 1**  
Staffing for the 350 Beds of PSPV PAC Facility Before and During the COVID-19 Pandemic

Role	Usual*	COVID-19 Wards
Physicians	1 attendee/20 patients	1 attendee and 1 resident/14 patients
On-call physicians (4 PM–8 AM)	2	2 attendees and 2 residents
Registered nurses	1/18 patients, half at night	1/10 patients, day and night
Nursing aides	1/10 patients, half at night	1/10 patients, day and night
Physical therapists (PT) and PT aides	2/40 patients	Same. Early mobilization after acute symptoms improved and post-COVID-19 rehabilitation
Occupational therapists	1/88	Same. Coordination of videoconferences and post-COVID-19 rehabilitation
Speech therapists	1	Same. Post-COVID-19 rehabilitation
Social workers	1/80	Same. Switch to remote (telephone)
Psychologists	3	Same. Switch to emotional support to patients, families, caregivers
Clinical pharmacists	2	Same
Students	All the health care professions	Nurse students with only a few months left before completion of their training were hired due to staff shortages
Non-health care staff (cleaning, housekeeping, surveillance, call center)	Standard	Cleaning, surveillance and call center increased

\*The numbers presented are averages (staff/patient ratios are higher in acute care for chronic decompensated diseases and palliative care units than in the geriatric rehabilitation units).



<sup>1</sup>Clinical Frailty Scale (CFS), 0–9, no frailty-terminal disease (Rockwood K, et al., CMAJ 2005)

<sup>2</sup>Levels of desirable Intensity of Care, 1–5, any possible option-comfort care (Sachs GA, et al, JAGS 1995)

**Fig. 1.** Overview of the older COVID-19 patient pathway in a post-acute care facility. A downloadable PDF of this form is available at [www.sciencedirect.com](http://www.sciencedirect.com).

- *Measures to ensure ethical treatment* (access to care or policy for visits and communication) reflected the statement of the Bioethics Committee of Catalonia.<sup>29</sup>

With hindsight, we learned a few key lessons: (1) lockdown of the institution should be immediate (we initially allowed 1 visit per day); (2) staff in non-COVID-19 wards should adopt strict protective measures straightaway; and (3) PCR testing must be

low-threshold (diagnostics were initially delayed because official protocols limited PCR testing to people with complete symptomatology or known contacts).

Challenging decisions, from an ethical and pragmatic viewpoint, included restriction of visits and degree of access to patients' rooms for rehabilitation. Shortage of materials and staff and constant changes of directives from the official authorities were additional

**Table 2**  
Main Actions to Respond to the COVID-19 Pandemic Within the PAC Facility

Area	Goal	Action
General	Coordination and roles	Constitution of a COVID-19 committee, daily meetings, definition of roles
Transmission control	Patients' protection and increase capacity	Fast-track discharge of existing patients able to receive care at home
	Early diagnosis	Timely screening of all patients and staff with PCR
	Minimization of contacts with potential vectors	Lockdown to visitors (exceptions for last days of life or severe delirium)
Staff	Care of patients with COVID-19	Closure of outpatient centers and rehabilitation day hospital
	Care of patients without COVID-19	Organization of designated COVID-19 wards physically separated
	Staff protection	Protection of non-COVID wards: rapid PCR, lockdown of common spaces
	Reorientation of roles where usual tasks could not be done	PPEs and training modules. Patients with COVID-19 wear masks during visits
Patient care	Holistic assessment and prognosis	New tasks (eg, occupational therapists undertook video calls between patients and family/friends, an important therapeutic role)
	Avoidance of ageism and overtreatment	Situational diagnosis through short Comprehensive Geriatric Assessment (CGA) and Clinical Frailty Scale as a prognostic tool
Post-COVID-19 phase	Acute care for COVID-19	Advanced care planning based on CGA + frailty: the desirable intensity of care (scale 1–5) is reflected in the Health Electronic Records
	Right care for older adults	Provision of reasonable acute treatment options for COVID-19
	Palliative care	Prevention and management of geriatric syndromes (delirium, immobility)
	Rehabilitation and reablement	Implementation of early palliative care
Communication	Discharge	Mobilization in the room after hyper-acute symptoms (PCR+ patients)
	Internal-external communication with families	Fast-track rehabilitation (7–10 days, resistance + respiratory training) (PCR–)
Ethics	Guide decisions	Conventional geriatric rehabilitation if needed (PCR–)
		Discharge protocols include pre-discharge contact with primary care

contextual challenges. The pandemic also offered valuable examples of collaborative, interdisciplinary, integrated, and creative work, which will be pivotal for the post–COVID-19 system.

## Comment

PAC may be reoriented to treat older patients with COVID-19 through a comprehensive approach focusing on all levels, including administration, health care, communication, psychological support, and ethical frameworks. Many countries have similar PAC resources but few have been adequately equipped during the pandemic,<sup>30,31</sup> thereby compounding the problem rather than becoming part of the solution. Conversely, PAC, if adequately organized<sup>32</sup> and supported, as described here, is uniquely positioned to provide geriatric management and rehabilitation in the acute and post-acute stages to improve the outcomes of older adults affected by COVID-19 and to ensure value-based care irrespective of age.

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*The pragmatic innovation described in this article may need to be modified for use by others; in addition, strong evidence does not yet exist regarding efficacy or effectiveness. Therefore, successful implementation and outcomes cannot be assured. When necessary, administrative and legal review conducted with due diligence may be appropriate before implementing a pragmatic innovation.*