Pharmacy and COVID-19: Time to Deploy The Most Accessible and Overtrained Healthcare Profession

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As Italy’s death toll from the novel coronavirus climbed to the highest in the world, its doctors made a plea to other countries: Manage the pandemic in the community, not in hospitals and emergency rooms.

When people with COVID-19 show up at hospitals, they can spread the virus to other patients and health care workers. Italian authorities believe that the instinct to go to the emergency room first, even if the symptoms aren’t severe, contributed to the country’s current disaster.

Like Italy’s, the United States’ health system is hospital-centered. As a result, pandemics can quickly overwhelm the hospital system, limiting its capacity to deal with other urgent medical conditions.

But an alternative exists that could help manage the pandemic among the majority of COVID-19 patients with mild to moderate symptoms. It is the 67,000
Vital Roles for Pharmacy:

• Community containment

• Improve chronic disease control
"The size of an outbreak can be substantially reduced by quick identification of cases using rapid diagnostic tests."

Outbreak science: recent progress in the detection and response to outbreaks of infectious diseases

Authors: Catherine F Houlihan and James AG Whitworth

The frequency of reported outbreaks of infectious diseases has increased over the past 3 decades, with predictions that this rise will continue. Outbreak response continues to follow nine basic principles: establish the presence of an outbreak, verify the diagnosis, make a case definition, find cases and contacts, conduct basic epidemiology, test hypotheses, institute control measures, communicate the situation and establish ongoing surveillance. Within each of these areas, significant advances have been made over the past 5 years using progress in digital, laboratory, epidemiology and anthropological equipment or techniques. Irrespective of these, future outbreaks of high-consequence are inevitable, and vigilance and preparation

Establishing the presence of an outbreak (and surveillance systems)

An outbreak is defined as more cases of a disease than expected in a specific location over a specific time period. Suspicion often arises when health care workers report an unusual cluster or a single, unexpected presentation. This passive surveillance leads to a delay in the detection of an outbreak. Various efforts have been made to improve this; monitoring social media and internet searches of symptoms have been used detect and report influenza epidemics. Online platforms have been used to rapidly share or access information about potential outbreaks for 2 decades"
Coronavirus Cases

Do nothing

Mitigation

The Hammer

Today

3-7 weeks

Coronavirus deaths as of 9 April 5 pm BST
Cumulative deaths, by number of days since 20th death

Note: Only selected countries are shown
Source: New Scientist analysis of Johns Hopkins University, CSSE; Worldometers
"It's Spreading Throughout The Hospital": NYC Healthcare Workers Describe Dire Conditions As Coronavirus Patients Flood Wards

I’m an ER doctor. The coronavirus is already overwhelming us.

My colleagues and I are trained to handle crisis situations. This is a different kind of test.

Coronavirus Overwhelms Georgia Hospital: Patients Flood In As Staff Weathers Exposure

As hospitals focus on coronavirus, patients with other illnesses wait in fear

By Ellie Kaufman

Updated 10:02 AM ET, Sun April 5, 2020
In the US:
- 67,000 pharmacies, 90%+ of US population lives within 5 miles
- 5,500 hospitals
- 5,400 emergency rooms
- 1,400 community health centers

https://doi.org/10.1371/journal.pone.0183172
Guidance for Licensed Pharmacists, COVID-19 Testing, and Immunity under the PREP Act

U.S. Department of Health & Human Services
Office of the Assistant Secretary for Health
Wednesday, April 8, 2020

Education, quarantine, self-care, referral
Immunizations (eventually)
Urgent research
• Treatment
• Immunity
Data tracking
Ongoing testing-tracing-quarantine

Chart 13: Suppression vs. Mitigation vs. Do Nothing — early on

- Learn
- Cut virus growth
- Understand true cases
- Recruit personnel
- Improve treatments
- Get proper testing & tracing
- Release healthcare system pressure
- Build healthcare capacity & production
- Understand cost-benefit of measures

Why We Must Test Millions a Day

“Achieving common acceptance of the need for tens of millions of tests a day and coordinating efforts to hit this target is therefore critical to our ability to go outside again.”

“For somewhere in the ballpark of tens to hundreds of billions of dollars, combined with an intelligent use of tracing, we can end a lockdown that is costing the US economy tens of billions of dollars every day.”

https://ethics.harvard.edu/covid-19-response
How TraceTogether works

We use Bluetooth signals to determine if you are near another TraceTogether user.

This proximity data is encrypted and stored only on your phone.

MOH will seek your consent to upload the data, if it’s needed for contact tracing.

- Bluetooth-based
- Interoperable between Android and iOS
- Preserve privacy

https://www.tracetogether.gov.sg/
Vital Roles for Pharmacy:

• Community containment

• Improve chronic disease control
<table>
<thead>
<tr>
<th>Underlying condition</th>
<th>Overall, no./total no. (%)</th>
<th>18–49, no./total no. (%)</th>
<th>50–64, no./total no. (%)</th>
<th>≥65 years, no./total no. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any underlying condition</td>
<td>159/178 (89.3)</td>
<td>41/48 (85.4)</td>
<td>51/59 (86.4)</td>
<td>67/71 (94.4)</td>
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<tr>
<td>Hypertension</td>
<td>79/159 (49.7)</td>
<td>7/40 (17.5)</td>
<td>27/57 (47.4)</td>
<td>45/62 (72.6)</td>
</tr>
<tr>
<td>Obesity</td>
<td>73/151 (48.3)</td>
<td>23/39 (59.0)</td>
<td>25/51 (49.0)</td>
<td>25/61 (41.0)</td>
</tr>
<tr>
<td>Chronic metabolic disease</td>
<td>60/166 (36.1)</td>
<td>10/46 (21.7)</td>
<td>21/56 (37.5)</td>
<td>29/64 (45.3)</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>47/166 (28.3)</td>
<td>9/46 (19.6)</td>
<td>18/56 (32.1)</td>
<td>20/64 (31.3)</td>
</tr>
<tr>
<td>Chronic lung disease</td>
<td>55/159 (34.6)</td>
<td>16/44 (36.4)</td>
<td>15/53 (28.3)</td>
<td>24/62 (38.7)</td>
</tr>
<tr>
<td>Asthma</td>
<td>27/159 (17.0)</td>
<td>12/44 (27.3)</td>
<td>7/53 (13.2)</td>
<td>8/62 (12.9)</td>
</tr>
<tr>
<td>Chronic obstructive pulmonary disease</td>
<td>17/159 (10.7)</td>
<td>0/44 (0.0)</td>
<td>3/53 (5.7)</td>
<td>14/62 (22.6)</td>
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<tr>
<td>Cardiovascular disease</td>
<td>45/162 (27.8)</td>
<td>2/43 (4.7)</td>
<td>11/56 (19.6)</td>
<td>32/63 (50.8)</td>
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<tr>
<td>Coronary artery disease</td>
<td>23/162 (14.2)</td>
<td>0/43 (0.0)</td>
<td>7/56 (12.5)</td>
<td>16/63 (25.4)</td>
</tr>
<tr>
<td>Congestive heart failure</td>
<td>11/162 (6.8)</td>
<td>2/43 (4.7)</td>
<td>3/56 (5.4)</td>
<td>6/63 (9.5)</td>
</tr>
<tr>
<td>Neurologic disease</td>
<td>22/157 (14.0)</td>
<td>4/42 (9.5)</td>
<td>4/55 (7.3)</td>
<td>14/60 (23.3)</td>
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<tr>
<td>Renal disease</td>
<td>20/153 (13.1)</td>
<td>3/41 (7.3)</td>
<td>2/53 (3.8)</td>
<td>15/59 (25.4)</td>
</tr>
<tr>
<td>Immunosuppressive condition</td>
<td>15/156 (9.6)</td>
<td>5/43 (11.6)</td>
<td>4/54 (7.4)</td>
<td>6/59 (10.2)</td>
</tr>
<tr>
<td>Gastrointestinal/Liver disease</td>
<td>10/152 (6.6)</td>
<td>4/42 (9.5)</td>
<td>0/54 (0.0)</td>
<td>6/56 (10.7)</td>
</tr>
<tr>
<td>Blood disorder</td>
<td>9/156 (5.8)</td>
<td>1/43 (2.3)</td>
<td>1/55 (1.8)</td>
<td>7/58 (12.1)</td>
</tr>
<tr>
<td>Rheumatologic/Autoimmune disease</td>
<td>3/154 (1.9)</td>
<td>1/42 (2.4)</td>
<td>0/54 (0.0)</td>
<td>2/58 (3.4)</td>
</tr>
<tr>
<td>Pregnancy</td>
<td>3/33 (9.1)</td>
<td>3/33 (9.1)</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Comprehensive Medication Management: Standard of Care for Optimizing Medication Therapy

Right choice

Comorbidities and other medications
The role of the pharmacist has evolved beyond dispensing medication into active participation in disease management and prevention. By including pharmacists on the care team, published evidence and health system experience consistently demonstrate that mortality is reduced, disease outcomes improve, healthcare costs are reduced for high-risk patients, hospital readmission rates are reduced and patients are more satisfied with their healthcare. This evidence has been demonstrated in a broad range of conditions including cardiovascular diseases, diabetes management, asthma/COPD, oncology, and psychiatry.

**A Need for Improved Medication Management**

The cost of illness and death resulting from nonoptimized medication therapy reached $528.4 billion, equivalent to 16% of total U.S. health care expenditure, in 2016. A pharmacist on the care team can help to optimize medication therapy outcomes and reduce cost.

**Recognition of Pharmacists on the Clinical Care Team**

The California Department of Public Health, U.S. Surgeon General, CDC, and Agency for Healthcare Research and Quality (AHRQ) all support the value of pharmacist on the care team interventions for proven improved quality of care and high return on investment.

Five Recent Studies Bolster Evidence for Clinical and Economic Benefits of Adding Pharmacist on the Care Team

- **Pharmacists Working in Los Angeles Barbershops Improved Hypertension (HTN) Control** (Cedars-Sinai, California, 2018)
  
  In a 2018 published NIH-funded study, a much larger percentage of patients who had their medications managed by a pharmacist in their barbershop achieved HTN control compared to those for whom the

- **Mortality Rate Declined Dramatically for Recently Hospitalized Coronary Artery Disease Patients** (Kaiser Permanente, Colorado, 2007)
  
  CAD patients receiving comprehensive cardiac care from a collaborative practice of pharmacists and nurses soon after hospital discharge were 89% less likely to die as compared to patients not enrolled in the program.

- Quadruple Aim aligned
- Greater access
- Sustainable (value-based payment)
www.calrightmeds.org

Mission: To provide optimal medication therapy for high-risk patients in their communities
**Mission:** Provide optimal medication therapy for high-risk patients in their communities

**Participants:** 10-300 teams - Vetted through surveys, plan data, location, site visits

**Prework**

**Ongoing Support:**
- Additional live trainings, including standardized patients
- *Virtual care training (phone and video telehealth)*
- Biweekly webinars
- Local coaching
- Data sharing for quality improvement and aggregation of impact measures
USC Clinical Pharmacy Video
Telehealth Services

• USC Health Sciences Campus
• Direct to patient’s home / office
• Commercially insured
• High-risk heart failure

• AltaMed Health Services
• To clinic
• Medi-Cal population
• Common chronic diseases
• Several platforms used / available (BlueJeans, WebEx, Zoom, Doxy.me, etc.)
California Right Meds Collaborative: What Makes it Work?

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Dir. Clinical Pharmacy

Dr. Hanna Sung  
Amb Care Pharmacy Director

Dr. Dri Wang  
Psych Sr. MSL

Dr. Ron Victor  

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USC School of Pharmacy
California Right Meds Collaborative: What Makes it Work?

- Stringent pharmacy vetting process
- Clinical documentation platform, CQI

PERFORMANCE
PREPARING TO THRIVE IN THE PAY-FOR-VALUE WORLD

USC / Blue Cross / Schering Community Pharmacy Asthma Program (N=434)

- ER visits
- Hospitalizations
- Inpatient Days
- ER Costs
- Inpatient Costs

Pre vs Post
Pharmacy and COVID-19

- **Community containment**
  - “Hammer”: Widespread testing and tracing, reduce pressure on hospitals and ERs, buy time
  - Facilitate / conduct needed research (eg, treatments, immunity)
  - “Dance”: Ongoing testing, tracing, quarantine as restrictions lifted

- **Improved chronic disease control**
  - System struggling to care for patients with other illnesses
  - Lower risk of severe infection / death
  - Facilitated by remote care supported by health plans
If you need 144 rolls of toilet paper for a 14 day quarantine you probably should’ve been seeing a Doctor long before COVID-19.
The whole country would be tested by midnight if Chick-fil-A was running the drive thru testing centers. 😊

#eatmorchikin

...but only 2,497 locations in the US