COVID-19 Use Cases

In recognition of the urgency of the COVID-19 Pandemic, we have been doing some community brainstorming, led by a small "Tiger Team" of clinical stakeholders, to identify areas of need that intersect with community capabilities. A short list of recommendations follows, presented for discussion among the BPM+ Community Workgroups this week.

It merits mention that every idea on this list has value and would be beneficial. In some cases, BPM+ was a good "home" for the work. In others, it was felt that BPM+ would better serve as a contributor.

Note that the primary objective here is to combat the pressing needs facing health workers worldwide to the maximum extent possible. This is not a "publicity stunt", rather it is a mobilization of an ultra-skilled and compassionate community trying to help.

Note that within each Tier order of appearance is random.

Tier 1: Strong BPM+ Community Value Proposition

T1.1: Model clinical pathways for patients on a respirator/ventilator due to the virus, treatment plan received, outcomes realized. Identify and track data multiple data point, from across the globe, in support of learning clinical pathway. Very quickly disseminate best practices.

Rationale: This has tangible clinical benefits. Could start modeling before ventilation/respiration.

Approach:

Benefits:

T1.2: Model best practice for testing- tents, protective garb, healthcare workers, decision points. Account for front-line support, considering equipment and assets on hand, inventory levels, etc., to assist in effective deployment to maximize efficacy and caregiver safety. Mix of workflow and resource management, perhaps logistics.

Rationale: Not something that anecdotally we have seen being done. Definite need well suited to BPM.

Approach:

Benefits:

T1.3 Create a "placemat" to identify, contextualize, and point to work ongoing to address COVID needs. Adapt work done in AHRQ ACTS to create visual map to make emerging guidance discoverable, foster awareness, and facilitate access across multiple disparate sources. Establish common metadata set to improve access and navagibility of multiple sources of best practices, guidance, and recommendations.

Rationale: "Keeping up" with rapidly changing foundations is nearly impossible at present. The "thousand flowers bloom" is making it difficult to discover and disseminate practices. This could fill a real void and has little implementation risk.   Not strictly a BPM+ thing.

Approach:

Benefits: Improve discoverability of work being done, and help it fit together. Could elevate visibility of BPM+ assets and benefits.

Tier 2: BPM+ Contributory Proposition (supporting existing efforts)

T2.1: Field Survey Assessment Instrument/Front-Line Care Worker Support. An app that is downloaded to phone (opt-in) of front-line care workers. They can register at different levels and agree to participate at different levels. Basically they answer a survey. The frequency and depth of questions based upon their agreed level of participation and their role.

One questionnaire profile is to ask them their temperature once a day and have they been exposed. The app reminds them daily. Based upon previous responses, location and other factors the questions can evolve. Could be extended to include population dynamics, group exposures, etc.

Rationale: Several activities underway in this space.

Approach: Identify an effort in process and augment their work with BPM+ skills, back-tier support, enablement technology

Benefits: This app is helpful for a few reasons. First, it provides insight to how the disease symptoms initially evolve. Second, as the data set increases it can push info to the participants.

T2.2: Model clinical pathway for self-quarantined or indeterminant patient. For those "self-quarantined" due to known exposure, individual "quarantined" due to positive result. There are numerous decision points in this use case and lots of key data points. Ability to self report, when and how tested, triggers for surveillance, casting the net, how other exposed individuals are identified and
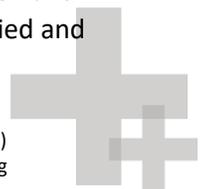
treated.   We can incorporate telemedicine, virtual care, and in person visits by home care team members, tracking of demographics, temp, symptoms, interventions, other diagnostics.

Rationale: Appears that several outlets are working on this.

Approach: Identify an effort in process and augment their work with BPM+ skills, back-tier support, enablement technology

Benefits:

T2.3. Hospital Strategic Planning & Preparation: Many hospitals' baseline during a normal respiratory\flu season is Stage 2. A few may get to Stage 3 for short periods of time. In a pandemic, everyone must consider sustained Stage 3, as well as, Stages 4 & 5 in the planning process. ACEP must take the lead on establishing these criteria as a simple straightforward mechanism to manage advancing stages of a pandemic. Hospital strategic planning.

Stages of Emergency Department (ED) Status During Pandemic

STAGE	NAME	ED CAP	INP CAP	STAFF	SUPPLIES	EQUIP	NOTES	RESPONSE
Stage 0	Baseline	Open	Open	Available	Available	Available	Typical operations with seasonal fluctuations.	Normal Operation
Stage 1	Initial Phase	Open	Open	Available	Available	Available	Local cases emerge, but handled in normal course of business	Preparation
Stage 2	Stressed	Open	Full	Available	Available	Available	Usual inpatient resources full. Elective admission cancelled	Full capacity protocol
Stage 3	Saturated	Full >35%INP	>100%	Minor Shortages	Minor Shortages	Minor Shortages	Use of ancillary spaces for inpatient, e.g. post-op, surgical suites, OP areas	Expanded full capacity protocol ED mostly cares for sick patients MASH tents
Stage 4	Extreme	Saturated >65% INP	Saturated	Shortages	Shortages	Shortages	Inpatient overflow into ED >65%, impacting ED ops. Scarce resources.	FEMA response. Use alternative sites (e.g. Guard Armory). Utilize military\National Guard personnel.
Stage 5	Disaster	Saturated 100% INP	Over Saturated	Serious Shortages	Unavailable	Unavailable	System failure. No capacity for additional patients. Resources exhausted.	Comfort care. May decide to abandon pandemic cases to care for others.
Stage 6	Recovery	Improving	Improving	Improving	Improving	Improving	Drop in new cases. Most of population has been infected.	Begin to restore resources.

NOTE: Any single box criteria moves ED to next stage.

Rationale: BPM+ community has extensive reach to help identify the right hosting organization, but doesn't have the inherent skills to "own" this effort.

Approach: Identify and engage with the ideal "lead agent", leveraging BPM community contacts to determine a good home to advance this. Collaborate with a lead partner to make this real. Create an information model to deploy to hospitals to incentivize implementation.

Benefits: Goal is to get information into the hands of hospital systems so they can plan to mitigate against advancing stages to the extent possible.

T2.4 Federal Health System Status Monitoring During Pandemic: This might likely require a reporting mandate to achieve compliance & meaningful data. However, there is also an HIT role to be played in this very useful data. Organizations such as CDC have been asking for support in this type of work.

Rationale: Advance data points for testing and results. Healthcare utilization; emergency care, ICU, etc. Resource requirements. Comorbidities related to COVID.

Approach: Forward and engage FHIR community to support?

Benefits: Leverage existing access channels to collect, aggregate, and analyze data landscape in support of enhanced treatment protocol and best-practices discovery.

T2.5 Supply Chain, and logistics support and enablement. How to engage to support enhancement of supply chain improvements to address critical shortages. Might extend to address decisions around healthcare exposure. Partnering people that are donating supplies with those that need them.

Rationale: There is known work in this space.

Approach: Identify an effort in process and augment their work with BPM+ skills, back-tier support, enablement technology

Benefit: Strong value proposition for BPM+ to assist, and to optimize efforts underway.

T2.6. Create a registry to build a body of knowledge in support of learning and pathway improvement.

Rationale: Several existing efforts in this space with established collection infrastructure.

Approach: Identify an effort in process and augment their work with BPM+ skills, back-tier support, enablement technology. Consider approaching Federal efforts in this space.

Benefit:

Tier 3: Valuable work we are not positioned to substantially impact

T3.1: Research (Future Planning): See mandate caveat above. There is no doubt monitoring ED Status during a pandemic would provide useful data for future planning and research. Research angle to be able to collect evidence basis for ongoing learning and protocol development.

Rationale: There are out-year benefits but BPM+ community can have more immediate, tangible impact applying resources to other efforts.

Approach: Defer.

Benefit:

T3.2: Adapt/extend existing BPM+ Model Libraries to Promulgate Guidance. Advance work from within BPM+ that is standards based and advance awareness of and utility of these assets (e.g., Trisotech libraries that are freely available).

Rationale: Potentially viewed as competing with authoritative sources.

Approach: Fold this approach into the "Placemat" work to promulgate awareness and complement existing efforts.

Benefit: Rapidly changing guidance is ideally suited to BPM+ and community benefit. Jumpstart work that can be adapted can advance best practices.