Virtual care: how a global pandemic accelerated new ways of delivering care

We will be starting shortly
If you would like to ask a question or network with other attendees, please use the chat box.

Please note this session is being recorded
Virtual Rehabilitation
A Virtual Success Story During Covid 19 Pandemic

Presented by:
Thomas Harris, COO and EVP-Operations
Ankur Sharma
VP-Integrated Care Services
About Gillette Children’s

• An independent, freestanding, nonprofit specialty children’s hospital that focuses in treating children with rare, complex and traumatic conditions
• Founded over 124 years ago as the first hospital in the US dedicated to treating children with disabilities
• Consists of a 60-bed hospital and 11 clinic locations across Minnesota
• Serves over 25,000 patients per year, originating from from rural and urban Minnesota, over 40 US states and over 12 countries
• The acuity of Gillette patients is one of the highest of all independent children’s hospitals in America
• Recipient of several national and international accolades and awards
Covid-19 Timeline

Jan 20, 2020
• First confirmed Covid-19 case in the US

Mar 6, 2020
• First confirmed Covid-19 case in the state of Minnesota

Mar 25, 2020
• Minnesota Governor orders people to “stay at home” to curb the spread of the coronavirus.
Adapting to the New Normal

Gillette followed the Center for Disease Control and Prevention (CDC) and Minnesota Department of Public Health (MDH) guidelines:

• Wellness screening requirement for all patients, visitors, employees, and medical staff
• Altered visitor policy, limiting visitors to two immediate family members or caregivers
• Mandated masks and employed social distancing practices
• Implemented intensive sterilization protocols through its Environmental Services Team
• Explored new safe ways of providing clinical care to patients, including virtual visits in multiple clinical areas, including Rehab Therapies
Rehabilitation Therapies help develop or regain strength, mobility and independence over time in patients.

- Includes the areas of Physical Therapy, Occupational Therapy, Speech and Language Therapy, Aquatic Therapy, Audiology, and Nutrition and Feeding therapy.
- Accredited by Commission on the Accreditation of Rehabilitation Facilities (CARF) for both its pediatric specialty and pediatric brain injury programs.
- Rehab Therapies at Gillette maintains 120 staff and renders over 62,000 visits per year – approximately 25% of all Gillette volume.
- Covid-19 crisis resulted in a 75% reduction in scheduled appointments and temporary staffing reductions.
Virtual Care as a Strategy

Pre-pandemic
- Virtual care available for some medical appointments for over 10 years
- Initiated based on the needs for out of state patients and their post-acute care needs
- Very conservative set of rules for virtual care – state mandates, payment guidelines
- Challenged by provider and patient adoption – successful where provider buy-in existed

Response to Covid-19
- Allowed clinical care provision to continue, thereby avoiding clinical regression of musculoskeletal form and function
- Negated patients need to travel, reducing infection risk
- Safe outlet for staff to provide patient care given limited clinical space and social distancing constraints
- Didn’t need PPE, thus limited PPE could be directed to more acute needs
Rehabilitative Care Transformation through Innovation

Care Transformation: Virtual Rehab was a new concept

Comprehensive infrastructure: Multidisciplinary Collaboration of over 200 staff
Setting the Stage for Virtual Visits

Multidisciplinary evaluation for regulatory and infrastructure needs

• Reviewed state practice acts, payer guidelines, professional, ethical standards to ensure alignment with recommended telehealth practices
• Developed clinical resources (e.g., virtual care protocols)
• Authored a master training manual for rehabilitation clinicians for care delivery and documentation protocols
• Installed Cameras on laptops as needed
• Built templates for virtual visits
• Purchased patient education tools to enhance virtual care delivery and patient education needs
• Piloted first Virtual Rehab visit in April 2020
Initial Impact: Access

- Over 13,500 medical virtual visits
- Over 12,500 rehabilitative virtual visits
  - 12% of total rehab visits
Initial Impact: Experience
Virtual Rehab delivers on the US Healthcare “Quadruple Aim”

To learn more about Institute of Healthcare Improvement Triple Aim and Quadruple Aim initiatives:
http://www.ihi.org/Engage/Initiatives/TripleAim/Pages/default.aspx
Virtual Rehabilitative Therapies Future Plans

- Current assessment shows that this new delivery model of rehabilitative services is sustainable for the long term

- Strategic decision for program expansion at Regional, National and International level to:
  - Improve patient’s access to rehabilitation services
  - Increase Gillette’s reach and ability to influence care delivery in complex and rare diseases
Additional Resources

• [Gillette’s Virtual Rehab Therapies home page](#)

• Research brief "[Gillette Children’s Specialty Healthcare In Minnesota: A Virtual Care Success Story During Covid-19 Pandemic](#)"

• [Institute of Healthcare Improvement Triple Aim initiatives](#)

• [Annals of Family Medicine Article on Quadruple Aim](#)
Contact Information

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Questions/Discussion
The Future of Remote Critical Care

An overview of current and future prospects for virtual critical care

Dr Sai Praveen Haranath | MBBS,MPH,FCCP, American Board Certified in Internal Medicine,Pulmonary and Critical Care Medicine
Senior Consultant, Pulmonary and Critical Care Medicine | Apollo Hospitals Jubilee Hills @ThinkMD
eACCESS : Apollo Remote Critical Care

Nationwide, >7 years, COVID boosted work exponentially
Mrs Patel

• 50 y old housewife with chest pain for 30 minutes. COVID positive.

• Shortness of breath and has low BP of 80/50

• Taken to nearest hospital

• Emergency measures undertaken

• Keep/Shift/Other options
Mrs Mason

- 50 y old housewife with chest pain for 30 minutes. COVID positive.
- Shortness of breath and has low BP of 80/50
- Taken to nearest hospital
- Emergency measures undertaken
- Keep/Shift/Other options
Remote Care

Monitoring, Video Communication and Triage

- Telemedicine Practice Guidelines
- Wearables and remote devices for capturing vital signs
- Video and phone communication to assess state of illness
- Triage to decide if oxygen or specific medications needed
- Safe transfer to higher level of care
- Education of patient and remote team
STATE OF THE INDIAN ICU
Challenges. Opportunities

Demand >>> Supply

Quality issues

Accessibility

Availability

ISCCM

Specialty ICU

All purpose ICU

Tropical diseases
Seasonal diseases
Disasters
Epidemics
Apollo Remote Critical Care

Anywhere, Anytime for Everyone

Monitor the technological divide

People come first

Ensure Equity

Technology in any form is only a tool

COVID 19

Swimming despite the waves

- Communication
- Knowledge Transfer
- Remote Care for inpatients
- Home based diagnostics
- Home Care
- Remote surveillance

> 15060 COVID patients treated

> 5200 non COVID specialty consults

> 5 ECMO urgent tele consults
Protocol Based Care
Standardizing the approach: making sense of the data deluge

Investigation and treatment protocol for COVID-19

**Suspect COVID when:**
- Fever >38°C, cough, sore throat, cough, dyspnea
- Muscle pain, chills, repeated shaking with chills, conjunctivitis, loss of taste or smell, headache, nausea, diarrhea, hepatitis, acute abdominal pain, new skin signs around toes, rash with or without pruritus, myocarditis, STEMI, ischemic/hemorrhagic stroke, encephalitis, altered mental status/debilis in elderly
- Sick contacts, residence in high prevalence area, immune disorders (MIS-C, MIS-A, ITP, ADEM)
- Any febrile illness >72 h without clinically overt localization

**SpO2 > 94% RA, stable vital signs, reliable follow up**

**Age >60 with no underlying medical conditions**

**Mild (Category A)**

**Moderate (Category B)**

**Severe/critical (Category C)**

**Admit to COVID-19 ward**

**Admit to COVID-19 ICU**

**Tests for A and B**

- Tests for A:
  - CBC, CRP, PCR, LFT, creatinine, CRP, d-dimer, ECG, RWD,
  - PCT, PT/PTT, hba1c, SARS CoV-2 antibody

- Tests for B:
  - PCT, PT/PTT, hba1c, SARS CoV-2 antibody

**If on RA, RR >24 or SpO2 90-93%**

- If on RA, SpO2 >90%
- If on RA, RR >24 or SpO2 90-93%
- If on Oc, requiring <8L/min (40% FiO2 via Venturi) to maintain SpO2 >90%

**If on Oc, requiring >8L/min (80% FiO2 via Venturi) /HMV/ NIV / mechanical ventilation**

- RP, AKI, ARDS, and organ damage, severe NAD

**Treatments for COVID-19**

*July 22, 2021*

What helps, what doesn’t, and what’s in the pipeline
25,000+
COVID Patients Treated @ Home

Our expert team has been working tirelessly to serve patients in these tough times.
Detecting clinical patterns

Multivariable mortality risk prediction using machine learning for COVID-19 patients at admission (AICOVID)

Sujoy Kar 1, Rajesh Chawla 2, Sai Praveen Haranath 3, Suresh Ramasubban 4, Nagarajan Ramakrishnan 5, Raju Vaishya 2, Anupam Sibal 2, Sangita Reddy 3

Affiliations + expand
PMID: 34140592  PMCID: PMC8211710  DOI: 10.1038/s41598-021-92146-7

Free PMC article
Innovations

Hi! Here is a quick test to analyse your cough. Answer a few questions and record your cough pattern to find out your risk for COVID-19.

Please cough multiple times for up to 10 seconds.

CORONAVIRUS COUGH & RISK RESULT

LOW RESPIRATORY ILLNESS

Cough Pattern
Normal

Cough Audiometric Parameters
Dry Cough Count: 2
Wet Cough Count: 0

Powered by Swässa
Apollo eaccess initiative: Tele-ICU during the COVID crisis

Ganti, S. R.; Haranath, S. P.; Subba, K.


Article in English | EMBASE | ID: covidwho-1200263

**Abstract**

Introduction:
The practice of Telemedicine is still in its infancy in our country. Lack of awareness, as well as acceptance for patients and professionals, has been cited as the principal reason behind the delay in its full-fledged development. Apollo Hospital launched "eACCESS" tele-ICU service has been functional since 2013 and has remotely manage patients in the last 3 years in several hospitals in our country. Continuous round the clock monitoring of eICU has been possible with the use of remote technology. The global COVID-19 pandemic has united all nations against a common enemy; the novel coronavirus. In times like these, where social distancing is the new norm, the tele-ICU service from Apollo Hospital has enabled healthcare professionals to evolve and thrive remotely. We have currently extended our monitoring services for COVID-19 patients at many more hospitals in the country like Dhaka (BP), Lahore (BP), Kanpur (BP), Indore (SAI), and Ranchi (BPM). Our workflow has evolved with time and we do a minimum of two interactions per remote site every day. Our team of intensivists work continuously, monitoring patients in shifts along with specially trained critical care nurses. The study protocol is approved by the institutional review board of Apollo Hospitals.

**Methods:**

Our workflow has evolved with time and we do a minimum of two interactions per remote site every day. Our team of intensivists work continuously, monitoring patients in shifts along with specially trained critical care nurses. The study protocol is approved by the institutional review board of Apollo Hospitals.
eNeuroIntensive Care in India: The Need of the Hour

Sai P Haranath, Krishnan Ganapathy¹, Subba R Kesavarapu, Sreenivas D Kesavarapu

Abstract:
Background: As ICU consultants in smaller hospitals may not be familiar with its current travel restrictions due to the COVID-19 pandemic, one needs to rethink on how best to provide.
Objective: This article reviews the authors’ experience of providing remote neuro-intensive care to ICUs over a 6-month period.
Material and Methods: 61 neuro consultations were provided for 68 patients admitted in seven ICUs. Most teleconsultations were from these rural hospitals. The authors have monitored remote patients with neurological conditions, in 23 ICUs.
Results and Conclusions: Providing real-time virtual neurological advice to ICUs without dedicated neuro-intensive units is feasible in India. eNeuroIntensive care is the current “New Normal” era.
Key Words:
eNeuroIntensive care, tele-neuroIntensive care, telehealth and COVID-19, teleICU

Key Message:
With telehealth being accepted by the medical community, providing remote neuro-intensive care is essential.

Review Article

Tele-Intensive Care Unit Networks: A Viable Means for Augmenting Critical Care Capacity in India for the COVID Pandemic and Beyond

Sai Pavan Haranath¹, Saj Ganesh Udayakumar²
¹Apollo eACCESS, Department of Critical Care Medicine, Apollo Hospitals, Hyderabad, Telangana, ²Healthcare Information Technology and TeleHealth, Sri Sathya Sai Central Trust, Puttaparthi, Andhra Pradesh, India

Abstract

The COVID-19 pandemic has enormously stressed global healthcare systems compelling new approaches to care, especially by leveraging telehealth. In India, the timely release of the Telemedicine Practice Guidelines by the Government has enabled health providers to deliver essential medical evaluation, diagnosis, and triage remotely. Patients with COVID-19 present with a range of symptoms, and some need intensive care. The management of critically ill patients is resource-intensive and requires partnership between humans and machines. Monitoring vital physiology is key to effective critical care. In many countries, including India, the distribution of intensivists is skewed and tends to be predominantly housed in urban tertiary care hospitals. Hospitals without on-site intensivists may benefit from tele-intensive care unit (ICU) services wherein electronic systems connect ICU patient data with intensivists at remote locations as part of a collaborative network. The tele-intensive unit provides real-time data and audiovisual monitoring, diagnostic, and intervention services and works together with bedside teams bridging the critical care gap. This article is a practical guide for the logistics of telemedicine-based critical care in India for patients with COVID-19 and other conditions. In addition, this paper also suggests methods to expedite care. Information is provided for immediate use by physicians who have not practiced telemedicine in the ICU. As the number of patients affected increases around India rapid deployment of tele-ICU services will be essential to save lives. Caregiver stress can be minimized by remote care providers who can assist at any time.

Keywords: COVID-19, critical care, intensive care, telehealth, tele-intensive care unit, telemedicine
Safety in the air

“Geography is History”
Benefits of TeleICU

- Provide critical care expertise where not available
- Guide less trained health professionals by remote hand holding
- Take advantage of time differences
- Best practices adherence audit systematically & implemented instantly
- Provide respite for busy on call providers
- Increase nursing confidence in managing complex patients
- Improve knowledge base for all involved
- Educate, reassure and involve family in plan of care at any time
- Coordinate transfer of patients

What next?
Tough Questions?

Can the NHS adopt telecritical care?

Can the NHS adopt cross border telecritical care?
Trust

Barrier and Bridge

Outcomes
Better Health
Cost

Faith

Reputation
Quality
Deliverables
Let there be light

A view of the Earth's lights at night, acquired by the Suomi National Polar-orbiting Partnership (Suomi NPP) satellite.

NASA
THANK YOU

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DEVELOPING A TELENEONATOLOGY PROGRAM IN RESPONSE TO THE COVID-19 PANDEMIC

DR CHRIS DEWHURST
CLINICAL DIRECTOR
LIVERPOOL WOMEN'S HOSPITAL AND ALDER HEY CHILDREN'S HOSPITAL
LIVERPOOL, UK
LIVERPOOL NEONATAL CARE

- Two site model “Liverpool Neonatal Partnership”
- All modalities incl surgery, cardiac, fetal medicine
- LWH
  - c8,000 deliveries
  - 44 cot NICU
- AHCH
  - Largest children’s hospital in UK
  - 9 cot surgical HDU
  - PICU + ECMO
SPRING 2020

Telehealth Symposium
Dr Jennifer Fang, Mayo Clinic
Tele-neonatology Programme
Network support resuscitation/stabilisation

Monday 2nd March
“Get the telemedicine system ....we are going to need it”

Friday 7th March

49 more people in Italy died
Local authorities reported 49 new deaths on Friday, as well as 778 new infections. That brought the total number of deaths to 197, with 4,636 patients.

Second British death feared
There were concerns the virus had claimed its second victim in the UK after a man died at Milton Keynes University hospital on Friday. The patient had tested positive to one of two tests that confirm the illness. A second test was due to be carried out.

UK cases see single largest day-on-day increase
Department of health and social care figures showed 163 confirmed coronavirus cases in the UK; an increase of 47. That is the greatest nominal increase since the outbreak began. The department said more than 20,000 people had been tested for the virus.

The prime minister, Boris Johnson, said it looked like the UK would face substantial disruption and pledged a further £46m for research into a vaccine.

Two British Airways staff tested positive
The airline said the pair have been isolated and are recovering at home. A temple in Watford, Hertfordshire, has closed after a member of the congregation tested positive with coronavirus, according to a statement on its website.

The US president claimed the virus would just go away
Donald Trump, who has previously called the outbreak that has claimed more than a dozen US lives a “hoax”, has said it will simply “go away”. Trump said the US had relatively few cases and claimed that was because the nation had been “very strong at the borders”.
UK LOCKDOWN AND IMPACT ON NEONATAL UNIT

- Usually very low level of consultant staff sickness
- Prior to lockdown = 3/14 consultants on long term leave
- Lockdown = 7/14 consultants sick/isolating/shielding
- Loss of c40% of clinical facing time
- Service = unsustainable

Monday 23\textsuperscript{rd} March
- In-touch healthcare
- IT departments both sites
- IG approval
- How, where, when, why?!

Tuesday 24th March
IMPLEMENTATION

- Training – all remotely
- Restructured work patterns = “Virtual Consultant”
- Shielding Neonatologists
  - Neonatologist ward round cover into AHCH surgical unit
  - Full support of SCBU
  - Ad hoc support into PNW and fetal medicine
- Surgeons – remote access ward rounds into LWH

Monday 6th April
IMPACT

- Neonatology
  - 66 hours/week replaced with 1x virtual consultant
  - 3 month period cira £99,795 savings in “additional payments”
  - CO₂ saving 0.4 tonnes
Shielded neonatologists remain “part of the team” “contributing to service” “useful”. Otherwise…..?

- Easy to use (15 minutes training)
- Quickly became “the norm”
- Parents like the speedy reviews
- Quickly became “the norm”
- Parents accepted the technology quickly – prefer it if they have met the virtual doctor previously.
- Better than before
FUTURE

Research
Implementation for healthcare workers
Parents experience
Accompanying research project comparing telemedicine outcomes with traditional care

Going viral
Plastic surgeons, neurologists, cardiologists, specialist nurses – “new normal”
Fetal medicine
Maternal Medicine and Adult ITU
Wider neonatal network -22 neonatal units (UKs 2nd largest).
TELE-NEONATOLOGY IN 5 WEEKS

Telehealth: 2nd March
Start the ball rolling: 7th March
Lockdown: 23rd March
Systems Arrive: 24th March
Clinical Implementation: 6th April
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