# Appendix B: Open coding of interviews

| Themes | Solution Categories | Open Interview Codes |
|---|---|---|
| **Discharge** | Enable discharge predictability with more home care solutions and own downstream facilities | A good home care solution is to have the hospital responsible 3 days, therafter GPs<br>A whole separate team handles the home care patients<br>Build after care capacity to support hospital<br>Build out home care possibility as it gives many good options to the hospital<br>Build out home care to avoid bottlenecks with rehab or nursing facilities<br>Have a good home care organization of nurses and physicians<br>Home care can strengthen the care and the relationships<br>Home care solutions - 10 nurses and doctors work in the team to see patients daily<br>Home care solutions - hospital responsible for a week<br>Home care solutions can finish IV antibiotics at home and require low nursing needs<br>Hospital staff visit discharged patients in their home to release bed capacity<br>Hospitals can cover the entire continuity of care<br>Improve virtual care through in-home monitoring<br>Inpatient team follows patients at home for continuity<br>Invest in home care and cooperate between hospital, GPs and community<br>Invest in own downstream facilities<br>It is good to have much home care capacity<br>Release bed capacity by supporting the patient back home<br>Set up a camera to virtually see and monitor the patients in their homes<br>Take more responsibility for after services<br>The capacity of the hospital can increase if home care solutions are improved<br>Use a designed home care program to facilitate change<br>Use home care solutions to free up space and bypass after care services<br>Work with home care to ease the burden on the hospital |
| | Have dedicated discharge coordinators or coordinating teams | Case managers and social workers coordinate the outflow<br>Case managers are right in the middle of the coordination of the discharges<br>Case managers personnel help to plan for discharge<br>Financial officers to support flow to ensure insurance companies are connected<br>For discharge efficiency make physicians work as a part of the team<br>Have multidisciplinary rounds every day with proactive case managers<br>Operative direction coordinates discharge with after care<br>Outflow care management team handles discharges<br>Patient care coordinator responsible for discharges<br>Smoother discharge processes by daily rounding structure with care coordinators<br>Social assistant who coordinates after care<br>Social worker ansd care coordinator responsible for patient's needs<br>Social worker manages discharges to the home, case manager coordinates facility discharge<br>Use coordination consultants in the discharge process to facilitate transfer<br>Ward physician responsible for discharge flow |
| | Increase prioritization of discharge ready patients when planning procedures and activities | Base MRI-radiology schedule on discharge readiness to expediate flow<br>Discharge in early morning, teach in the afternoon<br>Identify limiting step to discharge<br>Milestone target perspective for each patient<br>Physicians must prioritize discharges<br>Prioritize discharge procedures<br>Prioritize flow before severeness more often<br>See if tests can be prioritized for discharge ready patients<br>Smooth discharges by improving week-end procedures<br>Strong daily focus on discharge ready identification<br>Try to release discharge ready patients by prioritizing their last steps<br>With real time data prioritize discharge ready patients at ancillare services |
| | Prioritize activities and organize staff to ensure early and efficient daily discharges | Deliver first week of medicine at inpatient pharmacy to expediate discharge<br>Discharge before noon by changing morning routines<br>Discharge before noon using KPIs<br>Discharge directly from the recovery room<br>Discharge lounge to free up beds for cleaning<br>Discharge teams to meet every day to discuss and expediate discharge<br>Encourage and incentivize morning discharges<br>Give time and support to physicians to expediate discharge<br>Have daily discharge synchronization<br>Medication at discharge to avoid readmission or medication outside to improve flow<br>The EHR automatically imports info to give a codified discharge summary<br>Use a common medicin card for better discharge<br>Use a discharge lounge at the ground floor for discharge ready patients |
| | Provide follow up appointments at discharge to ensure accountability and continuity | Discharge team has access to outpatient schedule to schedule follow up appointment<br>Follow-up appointment must be booked at discharge to avoid readmission<br>Have standardized phonecalls with nurse practitioners after discharge to ensure medical quality<br>Make sure there is a primary care appointment booked at discharge<br>Provide follow-up appointments at discharge<br>Provide tele consultations with patients in after care to avoid readmissions<br>Receive follow-up information back home<br>Social assistance will coordinate outpatient follow up at discharge<br>Support discharges by offering a follow up video visits |

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|---|---|---|
| **Discharge** | Request and work towards increased responsibility from after care services | Community has responsibility to find after care solution<br>Downstream actor accept patients when hospital needs it<br>Downstream actor must have peak-surge capacity<br>Good to have federal coordination of after care<br>Incentivize downstream transfer by giving fines to after care if long transfer lead times<br>Legislation to incentivize discharge<br>More capacity is needed in after care for complex patients that need facility discharge<br>Need for more downstream capacity<br>There is a shortage of available capacity at the facilities outside the hospital |
| | Set early discharge goals and work towards them along the patients' whole hospital journey | Create pre-visibility of estimated day of discharge<br>Early after care involvement - week ahead probability of patient discharge<br>EDD follow up to provide early discharge information to after care<br>Estimate day of discharge and work towards that metric<br>Every department at hospital estimates day of discharge of their patients<br>Have entire team focusing on reaching EDD<br>Improving EDD by statistics feedback<br>Organize care team to meet discharge goal<br>Plan for a specific day of discarge and give feedback on the results<br>Start planning discharge early, based on estimated day of discharge<br>Try to get a picture of when patients will be discharged and follow up on that and measure<br>Use better tools and technologies to standardize the internal discharge process<br>Use data analytics to help physicians becoming better at estimating day of discharge<br>Visualize day of discharge in EHR so everyone sees and understands the process |
| | Share objectives, information and real time capacity data with after care services | Align objectives with after care through regular meetings on needs and quality<br>Annual convention with after care on patient flow<br>Build good relationships with after care<br>Coordinate closely with a selected group of rehab centers, nursing homes and nursing facilites<br>Have a clear transfer of accountability to after care<br>Have good electronic communication with after care<br>It is necessary to have good relationships with after care services<br>Mutual agreement with after care on patient care chains<br>Occupancy data sharing between hospital and after care<br>Partnership with after care services<br>Share medical records with after care services<br>The most important thing is to have a good relationship with the players who take over the patient<br>Try to understand each other - after care and hospital<br>Use a discharge summary for chain of accountability<br>Work closely with managers of rehabilitation to find good solutions for patients |
| | Use mutual staffing collaboration between the hospital and after care services | After care has offices and staff at the hospital<br>Build closer relationships by staffing nursing facilites for coordination<br>Have nurse practitioners who frequently visit nursing facilities<br>Nurses from public after care service are present at the hospital for coordination<br>Send nurses and doctors with patient to give releif to after care<br>Staff nursing facilites for better coordination<br>Use hospital staff at nursing facilities<br>Use outgoing teams to after care<br>Work with nurse to nurse hand off with after care<br>Work with physician to physician handoff with after care |

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|---|---|---|
| **Healthcare sector** | Create healthcare system alignment with clear goals and objectives for each healthcare actor | A more jointly coordinated health system is needed<br>Common patient goals between all healthcare actors<br>Create a patient centric care across all healthcare actors<br>Create a systemness to the healthcare system<br>Crisp task descriptions for primary care, hospital and after care<br>Policy makers must understand the costs coming with having peak time capacity<br>Politicians must support the investment of more ICU beds to avoid overcrowding and bottlenecks |
| | Increase the staffing resources across the whole healthcare system | After care services are understaffed, hospitals are understaffed, primary care is understaffed<br>Find ways to deal with staffing shortages<br>Healthcare needs more staffing resources<br>If we do not have enough staff it does not matter if we improve our processes<br>More specialist nurses are needed in many different areas<br>More staffing resources are needed across the whole system<br>Our staffing resources must increase for us to speed up the flow of patients<br>The bottlenecks are very often associated to staffing shortages<br>The hospital as well as after care services must increase the staffing<br>To improve the flow we must employ more nurses<br>We must both find ways to work with less staff but people are simultaneously very important<br>We must educate and employ many more nurses in the whole healthcare sector<br>We must find ways to deal with the staffing shortages even if it is hard<br>We suffer from chronic staffing shortages and it really has an effect on the patient flow |

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|---|---|---|
| Entry | Capability to reroute less severe ED patients to other types of care | Admission discussed with flow officer to look for alternative routes<br>Analyse demand to avoid admissions by rerouting patients to more appropriate settings<br>Close communication with outpatient clinics to avoid physicians sending patients to the ED<br>Have a system to support planned acute surgeries<br>Invest in front end tools and use pathways to shape demand and avoid ED admittance<br>Prevent less severe acute patients from coming by changing incentives<br>Redirect less severe ED patients to outpatient locations and inform primary care<br>Transfer less severe ED patients to outpatient appointment |
| | Cooperate with other hospitals to ensure bed capacity and to seek appropriate level of care | Coordinate occupancy levels between hospitals in the region to balance load<br>Give coordinating emergency number visibility on hospital occupancy<br>Improve intra-hospital coordination by bringing sompler cases to other hospitals<br>Improve intra-hospital coordination by enabling right level of care<br>Improve intra-hospital coordination by relocating patients to the right hospital with the right level of care<br>Let external actor coordinate and balance the flow of patients to the different hospitals<br>Outsource or hand over simpler care to other hospitals<br>Plan real time for an optimal capacity between nearby hospitals to smooth load<br>Push secondary care to community hospitals<br>The most advanced hospitals cannot be everything to everyone<br>Use alert signs at hospital website to direct ambulances to hospitals with most capacity<br>Use intra-hospital coordination of the bed capacity |
| | Reach, inform and treat patients before they seek acute hospital care | Communicating hospital capacity using defined community distribution lists<br>Have a virtual ED before real ED<br>Have hospital off hours 24-7 hotline<br>Make outpatient teams communicate to patients, expectations on ED waiting time<br>Mobile teams meets patients in their homes<br>Prehospital call line secures acute patients are arriving to a hospital with capacity<br>Prehospital has mobile teams who reach and treat patients to avoid hospital care<br>Provide a tele-medicine hospital to support patients at home<br>Send preventive information to the public when capacity is restrained<br>Use an online express care as an initial triage<br>With info on patient google searches, hospitals can reach out to patients at an early stage in their sickness |
| | Require increased primary care responsibility and support with more knowledge exchange and coordination | Cooperate and invite primary care doctors to teach them to take more complex patients<br>Coordinate strategically with urgent care providers to avoid ED admissions<br>Educate the GPs in areas where they send too many patients<br>From a societal perspective more care should be given by primary care physicians<br>Help to make primary care physicians take more patients<br>Make GPs write better medical referrals<br>More collaboration with primary care physicians is needed<br>Primary care education and coordination<br>Primary care must have longer opening hours<br>Primary care must have longer opening hours and better availability<br>Primary care need to take more patients<br>Teach the physicians in primary care to treat patients with more complex problems<br>Urgent care plays an important role in offloading the emergency department |
| | Strategic planning: make recurring strategic revisions on fit between demand and capacity | Build annual makro model on demand and available capacity<br>Central management are inolved to strategically look at capacity gaps<br>Central management make quarterly reviews on unused OR capacity<br>Central management strategically looks at capacity gaps<br>Closely monitor demand and capacity to identify misfits for certain disciplines<br>Forecast demand - capacity requirements four times a year<br>Make long term planning on demand and hospital capacity<br>Management takes decisions on employment of critical specialities to fit with demand<br>Reoccuring capacity use problems are solved by the top management<br>Set capacity across hospital based on annual revisions on the need of the community<br>The central operational group studies utilization of outpatient clinics on capacity and backlog<br>The hospital managment must handle unresolved issued between the departments<br>Unsolved problems must be taken care of by the top management<br>Use demand forecast models with LoS, market share, to establish occupancy rates<br>Use predictive analytics to right size departments |
| | Strategic planning: use predictive analytics to forecast demand patterns and capacity needs | "Seven day hospital"- Use data to identify capacity need all seven days of the week<br>Build predictive views on scenarios for certain plans and demand patterns<br>Create situational awareness by using predictive data to estimate bottlenecks<br>Develop better outpatient frontend analytics<br>Develop predictive analytics to anticipate need of capacity margin<br>Develop predictive analytics to describe likely patient flow and requirements<br>Develop predictive analytics to forecast bottlenecks and overcrowding<br>Develop predictive analytics to have proactive trigger points<br>Develop predictive analytics to optimize staffing<br>Gather patient flow data to understand patterns<br>More predictive analytics could be used for the patient flow through the outpatient clinic<br>Provide forecasted risks concerning planned admissions and discharges<br>Use algorithms to predict capacity need<br>Use better tools to anticipate future demand<br>Work proactively to anticipate problems or bottlenecks |
| | Use IT-tools and data-analysis for standardized admissions, early assessments and reduced no-shows | Better time planning can reduce wait for pre-assessments<br>Digital pre-assessments by patients<br>Have a preoperative strategy assessing patient on video or by phone<br>Have a single phone number for each clinic to reduce patient confusion<br>Make patients accountable for outpatient no-shows<br>Reduce variability in ED admittance by visualizing practice variation among clinicians<br>Use robots to read and sort referrals<br>Use standardized referral pathway for efficient handoffs and communication |

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|---|---|---|
| **Internal** | Allocate dedicated capacity for both acute and elective patient flows | Acute and elective surgery must be separated to not cancel surgery<br>Caps on the OR schedule to secure capacity for acute patients<br>Have acute and planned care on separate floors and within separate surgery divisions<br>Operate acute cases immediately to better use OR and push flow<br>Separate acute and planned surgeries<br>When deciding capacity for elective OR cases, have a sufficient margin for acute cases |
| | Ensure a high OR-utilization with smart case mixes, all day utilization and quick cancellation refill | Begin with long cases and after short to utilize whole day<br>Count used and unused slots for surgery and appointments to improve utilization<br>Fill schedule from the back<br>For OR use, start early first case on time and optimize changeover times<br>Have a pool of patients on SMS-list to find a patient if a surgery is cancelled<br>Have capacity alerts to bring in patients on the waiting list<br>Improve the OR use after 15 to improve capacity<br>Make the OR staff understand need of flexibility around last case of the day<br>Make the staff understand the need of being flexible around the shedule to finish the cases of the day<br>Plan OR schedule strategically with both long and short cases over the day<br>Plan the OR schedule beginning with the long cases and contine with short later in the day |
| | Have a structured organization for daily problem solving and capacity optimization | Employ flow engineers to visualize and break bottlenecks<br>Have an operating management team to improve time use, changeover and processes<br>Hospital culture must shift to continuous improvement culture<br>It is important to have a problem solving meeting structure<br>Make change or improvement seen as good and necessary<br>Once a month there is a meeting about the present operations to solve bottlenecks<br>Tactical planning meets once a week to look ahead<br>Team for bottleneck identification<br>Use flow engineers to identify patients choke points |
| | Improve outpatient processes by implementing standards on schedules and appointments | Clear outpatient clinic standards on clinic time, start-stop, amount of appointments<br>Have outpatient clinical slot standardization<br>Same speciality clinics should have standardized set ups<br>Standardized physician times per patient in outpatient clinics<br>The outpatient world must become more organized like the inpatient side<br>Use room or template utilization to improve outpatient capacity efficiency |
| | Improve prioritization schemes and develop standards on procedures, roles and staff-bed ratios | Create clear prioritization lists among work tasks<br>Create flexibility across the hospital by working more with standardization<br>Create standardization with electronic instructions system<br>Greater utilization, lower variability, less staffing flexibility<br>Have a common and standardized coordination of the surgery process<br>Have clear guidelines for prioritizations on when to cancel surgeries<br>Have clear roles and responsibilities<br>Management must set clear prioritization schemes for surgeries of same type when capacity is filled<br>Practice to the top of your license<br>Standardize routes of communication<br>Standardize treatment and reduce artist culture<br>Surgeon puts patient on OR waiting list, head of department decides priority, nurse coordinator schedules the patient<br>Translate volume into resource equivalents to evaluate capacity<br>Use clear nursing rations per bed, speciality or type of patient<br>Use clear targets for nursing and bed ratios |
| | Invest in ancillary service capabilites to minimize bottleneck risks in indirect patient | Build lab capacity to deliver lab results at 10 a.m. every day<br>Expand sterile central to improve equipment predictability<br>Invest in diagnostics capacity<br>Need of more radiology capacity |
| | Make all employees understand the importance of having a patient flow focus | Change culture from personal preferences to flow prioritization<br>Change staffs individual preferences to a flow incentive<br>Individuals must understand the patientflow<br>Make doctors aware of the consequences of their decision on the flow<br>Making staff responsible for the throughput of patients instead of the single activities<br>Show everyone that uninformed capacity decisions can lead to flow inefficiencies<br>Staff must understand implications across processes |
| | Operational planning: have daily capacity meetings within the department or clinic | Daily meeting on capacity, anticipated ins and outs<br>Daily organizational bed huddles with patient care managers and charge nurses<br>Daily steering with use of input and discharge boards<br>Organize staffing capacity in morning and afternoon to synchronize with demand<br>Reoccuring capacity meetings during the day to solve bottlenecks |
| | Optimize and smooth occupancy rate levels by admitting patients based on length of stay and ICU risk | Base bed occupation on length of stay<br>Base capacity on optimal occupancy rates and estimated demand<br>Base OR case mix on available beds and anticipated LoS<br>Base planned care on anticipated occupancy census level and implications on ED boarding<br>Forecast how beds upen up based on estimated LoS<br>Forecast patient mix and LoS to identify necessary beds and staff<br>Improve flow by both building OR schedule on LoS and have fluid caps on ward beds<br>Make the beds evenly full over the week by building OR schedule based on estimated LoS<br>Optimize OR schedule with a mix of specialities to level load occupancy and severeness after surgery<br>Optimize system around capacity usage<br>Optimize the system around the OR use to minimize variation and increase efficiency<br>Plan elective care based on LoS to smooth capacity<br>Set up OR schedule based on likelihood of ICU treatment<br>Show what type and how many patients clinics will have so they understand difficulties of the ICU<br>Use daily risk estimation to decide operations flexibility<br>Use predictive analytics to estimate LoS for optimal scheduling<br>Use predictive analytics to estimate LoS for optimal scheduling |

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|---|---|---|
| Internal | Schedule staff and all clinical activities based on an optimal utilization of the OR-schedule | Align flow by adapting OR schedule, clinic schedule and research schedule<br>Build surgeon schedule around OR-efficiency<br>Decrease OR variation by making surgeons priroitizing the OR-schedule first<br>Find balance between OR efficiency and surgeon efficiency<br>Identify demand patterns for scheduling<br>Make surgeon plan research, teaching and appointments after whats best for the OR-schedule<br>Plan the staffing schedule well ahead<br>Surgeons must prioritize surgeries before their research |
| | Give clinics trust and improvement autonomy but follow central process metrics and external benchmark | Benchmark for internal production efficiency<br>Clinics are responsible for mapping out and organizing their beds<br>Clinics independantly set goals and use metrics to reach them<br>Compare standards and ratios to national benchmarks<br>Each outpatient clinic manages the flow within their clinic<br>Efficiency is driven by measuring length of stay metric<br>Identify capacity need by measuring time to finish activities<br>Identify capacity requirements based on internal capacity revisions and external benchmarking<br>Improve lead times with PREM<br>Look at beds available versus beds filled and amount of appointment slots filled<br>Look at internal metrics to ensure internal efficiency<br>Look at surgeon operating time to improve flow<br>The key metric on efficienecy is length of stay (LOS)<br>Use detailed follow-ups on metrics for efficiency<br>Use internal process metrics for efficiency |
| | Understand the tipping point of hospitals' capacity utilization and ensure sufficient capacity buffers | Define optimal occupancy rates and work towards them<br>Know your tipping point on occupancy and flow<br>Make sure to run below the critical capacity utilization level<br>Measure the use of the ORs closely to be between 80-85%<br>Plan surgical schedule with high margin to avoid peaks<br>Run below the occupancy rate tipping point where efficiency decreases<br>Run below the occupancy rate tipping point where efficiency decreases<br>The limitless demand logic must stop<br>There must be limits to how overcrowded a hospital can become<br>Understand where you have your capacity tipping point |
| | Use external facilities or patient hotels to release hospital bed capacity | Have a patient hotel to release capacity<br>have transplant patients living in external facility during treatment<br>Use a patient hotel when the patient is not sick enough to need an inpatient bed<br>Use patient hotel to avoid admitting patients to the hospital |
| | Use more digital tools and new treatment methods to reduce lead times | Create more capacity for ambulatory - day care services<br>Create more possibilities for the day hospital and care in the outpatient departments<br>Digitalization to make care more transparent to patients and staff<br>Have X-rays ordered digitally<br>Invest in new technology to enable less treatment<br>Move treatments from inpatient to outpatient if possible<br>Reduce internal variation locally with data support from central management<br>Transform care into more ambulatory care and build that capacity<br>Use ERAs (enhanced recovery after surgery) to make patients ambulate faster<br>Use shared patient dressing rooms to save time before treatment |
| | Use an OR block schedule per clinic and plan cases based on downstream bed availability | Block schedule for each department and if not used then open up for others<br>Build OR model with expected vacation, sick leave and available beds.<br>Check periodicity to ER volumes and then schedule elective cases to counteract or offset that<br>Create pre-visibility to plan OR schedule based on typology of patients and availability of beds<br>Define flow for different patient groups to optimize whats controllable and balance against the uncontrollable<br>Have a few surgeries per day per department to smooth<br>If beds are filled up then the flow team can prioritize to use OR for ambulatory patients<br>Level load capacity over whole week<br>Maximize use of the OR to level load across week<br>Need for operative scheduling across the services for level loading<br>Postpone an elective case until bed availability is guaranteed<br>Set caps on amount of surgeries according to available beds afterwards to avoid PACU boarding<br>Smooth the OR schedule and postpone cases to next week if OR becomes to busy<br>The scheduled surgeries must better match bed availability<br>Use an OR smoothing target every day for each clinic |
| | Utilize as much of the week as possible and staff day and week according to real demand patterns | Address cultural issues and try to utilize all days capacity<br>Allocate ED staffing resources from 12-16 to 17-22 instead<br>Base length of operating week on demand and impact<br>Create a new compensation system so staff can work outside traditional office hours<br>Have flexible staffing to adapt to peaks and valleys<br>Have more staffing in evenings and on weekends<br>Have physicians on call for decisions<br>have surgeries six days a week to level capacity<br>Improve the use of capacity all through the week. Fridays afternoon, evenings, weekends<br>Increase weekend flow by increasing weekend inpatient procedures<br>Plan clinic for variable occupancy<br>See if physicians can do surgeries in the evenings |

| Themes | Solution Categories | Open Interview Codes |
|---|---|---|
| **Management System** | Align objectives, metrics and patient data systems (EHR & CRM) across the organization | Coordinate systems more through an aligned EHR<br>Develop an operating model (how to work with flow)<br>Electronic patient journal connects forecasts on patients, where they will end up<br>Have a CRM-system to give same view on patient journey and needs across hospital<br>Have all metrics of the hospital on one board<br>Have doctors employed by the hospital<br>Have only one board of directors<br>Have physicians under same organization<br>Investing in new EHR system to better align organization<br>Systemness by having only one hospital board |
| | Build up flexible hospital-wide capacity to handle peaks or capacity unbalances | By historical trends try to staff according to when there is demand<br>Have a floating pool of nurses that can work in many different areas<br>Have a special nursing reserve unit with nurses that can be moved around<br>Have staffing resurces for demand peaks<br>Having a pool of flexible staff to support where needed<br>Use a central nursing staffing office to float people between services<br>Use a nursing block to move nurses between clinics<br>Use a surgical short stay unit (SSU)<br>Use interim personnel to handle demand peaks<br>Use more coordinators in evenings, weekends and holidays to have consistent efficiency<br>Use multi-speciality wards for more flexible bed capacity<br>Use non-traditional post anaestesia care units or PACUs of the hospital is full |
| | Put patient flow focus on top of the agenda across the hospital, to change the culture | Avoid overcrowding to be able to look ahead and plan the operations<br>Avoid overcrowding to not always have to be in the fire fighting mode<br>Change culture from accepting chaos to working with standards and weekly load balancing<br>Communicate carefully and walk through future state on how to reach it safely<br>Create flow incentives and levers for behavior<br>Create incentives around flow and not only revenue<br>Develop mindset to look across the hospital for capacity<br>Doctors and all emplyees must be well tied to the hospital to care for the whole process<br>Every employee must work for the whole hospital and the whole patient process<br>Hospital must plan around patient flow and not be provider centric<br>Implement more clinical pathways for better flow<br>Make everyone understand that they have to think about whats before and what comes next<br>Make organization understand that overcrowding counteract flow and revenue<br>Shift culture to support patient flow |
| | Connect managers and staff across the hospital to break silo mindsets | Align management across organization<br>Break system silos with a more flat structure<br>Bring all care contacts together to break silo mindset<br>Build management boards to coordinate between departments<br>Connect management teams inpatient - outpatient<br>Gather staff from different disciplines to give them knowledge about each other<br>Managers must represent the hospital before their department<br>Managers need good system understanding<br>Managers should focus on surrounding actors<br>See the whole hospital as a unified resource of beds<br>You need management committment to change |
| | Ensure sufficient capacity along the whole patient flow when setting objectives to avoid bottlenecks | Assure ability of each clinic and visualize capacity use with Power BI<br>Coordinate clinics along patient flow capacity to avoid resource leackage<br>Create capacity by higher throughput, more capacity or less admissions<br>Ensure hospital wide capacity before confirming targets<br>Ensure that there is available capacity all along the flow<br>Have an overcrowding crisis organization for optimal bed placement<br>Plan capacity with margin to avoid overcrowding<br>Plan operating theatres flow by management team<br>Plan the capcity to avoid overcrowding as far as possible<br>Plan the system to avoid overcrowding and back up of processes<br>Set indicative mission and iteratively anchor goals across organization<br>Shake hand on volumes along the flow to secure throughput<br>System wide capacity planning and accountability<br>The PACU can be used when the hospital suffer from overcrowding<br>Use emergency wards that can accomodate patients when there are great suddens demand peaks |
| | Operational planning: have daily capacity meetings with all clinics or departments of the hospital | Daily capacity meetings between flow team and ICUs<br>Daily inflow-outflow coordination with surgery areas<br>Daily meetings with departments on beds, staff and potential transfers of patients<br>Daily morning huddles for patient flow based on command center data template<br>Early operational capacity meeting to see acute flow and decide upon elective cancellations<br>Have a daily coordination meeting to plan the capacity and get visibility<br>Have a lean manangement approach with daily huddles at unit and hospital level<br>Have daily operational capacity conference<br>Managers at the patient flow department coordinates daily operational meeting with all services<br>The ED leads the daily capacity meeting on how to place patients |

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|---|---|---|
| **Management System** | Share and visualize correct data across the organization to make everyone understand flow implications | Create visibility to make staff understand that demand is not infinite and can be managed by systemness<br>Culture can change by having and making everyone believe the numbers<br>Important to create a real time view to avoid misunderstandings and whitewashing<br>Shared visibility creates transparency and breaks silos<br>Shared visibility is needed between outpatient and inpatient settings to facilitate flow<br>Visualize data, logic for change and emotional case for change to improve flow<br>Visualize the annual volume targets per month and per day along the whole chain of care<br>Visualizing for everyone that someone has empty beds helps alot |
| | Tactical planning: have weekly capacity coordination meetings with all clinics of the hospital | Data supported department management coordination meetings across hospital every week<br>Having OR meeting one week ahead with accurate and real data to optimize planning ability<br>Operational direction provides OR mission two weeks ahead, clinic then assess resources<br>Provide weekly understandable plans to clinics |
| | Use a flow command center to optimize capacity use and break hospital flow bottlenecks | Air traffic control coordinates rooms, admittances and discharges<br>Air traffic control oversees flow and acts on bottlenecks<br>Control rooms gives global picture and vizualises and acts on capacity imbalances<br>Coordinating center manages the flow and identifies bottlenecks<br>Coordinating center takes care of administration and documents<br>Coordinating room can see and act on flow bottlenecks<br>Flow department has patient deck list and fills treatment schedule when they see unused capacity<br>Flow department level loads surgeries globally<br>Flow department meets with OR daily to smooth OR cases based on anticipated bottlenecks<br>Flow department optimizes daily utility<br>Have a bed coordination center to optimize capacity and capability<br>Have a physical command center for capacity management, cleaning services and nursing staffing<br>Hospital wide operational coordination service (direction d'operation)<br>Operations command centers are important to have<br>Physicians and flow department give each other awareness of decisions<br>The flow department manages surge beds<br>Use a command center to coordinate beds, staff and bottlenecks<br>Use command center together with aligned EHRs and bed management systems<br>Use command centers like air taffic control rooms |
| | Use IT-tools to analyze bed capacity use and provide daily real time visibility on hospital capacity | Connect bed capacity with staffing resources real time<br>Have a dashboard with available beds and staff for each unit<br>Have good automated systems for statistics is important<br>Have operational metrics on the daily boards<br>Have screens with real time discharges - admittances<br>Provide better insight to bed capacity<br>Provide real-time information to operating leadership<br>Robust real time information about current situation<br>Send out a situational report twice a day<br>Use data analytics to see evaluate capacity in terms of use of beds and appointment slots<br>Use EHR dashboards to tell real time capacity across hospital<br>Use heat maps to see pressure over the week<br>Use heat maps to see where the highest work load is as base for improvements |
| | Use some type of patient coordinators to see and prioritize the needs and process of the patient | A nurse patient coordinator has global picture of each department and takes decisions<br>A patient navigator to traffic patients visits and book surgery<br>Command center physician leader and admitting services works close to create smooth transition from ED to ward<br>Flow coordinators to identify reoccuring problems<br>Have multiple groups represented in command centers<br>Have the same coordinator for returning patients<br>Nurses as operating managers in charge of patient flow<br>Nurses in expediting flow role at command center<br>Patient flow speciliasts coordinates flow<br>Patient navigators needs to have access to all schedules, know patients situation and have access to the EHR<br>Physician or nurse as patient flow officer in command center<br>Senior nurses to coordinate use of bed capacity |
| | Work with closer collaboration between clinics or departments across the hospital | Clinics help each other and move staff between them if someone is sick<br>Complex patients stays at designated ward, simpler patients can be transferred to other wards<br>Cooperate across clinics and identify need of staff<br>Department groupings for shared patient care<br>Good coordination between management groups of the OR, the ICU and the surgical wards<br>Identify partner units to pool capacity<br>If clinic is full then other clinics give beds to patient in joint coordination<br>If overcrowded then keep patients in the PACU to lower pressure on wards<br>It is extra important to coordinate the ED, the ICU and the OR<br>Make wards used to different patients to hospitalize patients in other departments<br>Retake patients to their proper dept. after situational relocation<br>Use the recovery room to create capacity if their is space and availability<br>When the ward is full then find beds in other specialities as long as its safe<br>When ward is full, patients can get a bed at other wards as long as its medically safe |

| Themes | Solution Categories | Open Interview Codes |
|---|---|---|
| **Transfer** | Give specific flow unit or team the task to control and arrange for efficient transfers | A coordinating unit can expedite ED transfer when no clinic wants the patient<br>Care practice consultants to coordinate transfer between outpatient practices and the hospital<br>Flow department control beds and the flow of patients<br>Flow department moves patients between services to optimize flow and care<br>Flow team has mandate to move a patient to other ward if there is a free bed<br>Have flow coordinators has strong mandate to optimise the flow of patients<br>Have flow coordinators with strong mandate to optimize flow<br>If clinic can't solve problem locally then flow team finds solution across hospital<br>Internal efficiency by cooperation between respective physician and coordinator<br>Main task of flow team is to get patients out of the ED in 10 hours<br>Patient flow department controls and optimizes use of beds<br>Patient placement department work with flow, admissions, discharge and transfer<br>The patient flow deparment controls bedflow and everything must go through there<br>Use flow coordinators with strong mandate to optimise the flow of patients |
| | Have clear roles with defined mandates concerning transfers between the ED and the receiving clinic | An internal transport center is responsible for transfer<br>ED decides patient transfer and is responsible until delivery<br>Emercency department identifies the receiving service that then must bring the patient from the ED<br>Improve transfers to not only rely on the management of relationships<br>Physicians admits but nurses control the flow from the ED to services<br>Receiving service cannot object to patient being sent to them<br>The ED has mandate to decide where patients are sent<br>To expedite ED transfer each department has a reference physician at the ED<br>Triage physicians dictates ward placement flexibility for patient<br>Use a pull system to make the wards pull a patient up from the ED when a bed is ready |
| | Have standardized handoffs, pre-defined destinations and established incentives for efficient transfers | Create clear view of where ICU patients can be transferred when stabilized<br>Have clear standards and handoff routines between outpatient and inpatient care<br>Have standardized templates for handoffs built into the electronic health record<br>Make transfer handoffs correct and efficient<br>Must be a quick doctor-doctor handoff for efficient transfers<br>Patient transfers depend on good personal communication<br>Use a detailed admission document where algorithm decides service of transfer to avoid any discussion<br>Use of frequency list to expedite transfer from ED to services |
| | Use digital tools to efficiently connect, direct and navigate cleaners, porters and ambulatory patients | Create an efficient system on how to notify cleaners to clean empty beds<br>Create the right incentives to transfer patients from the ICU<br>Have an efficient IT-system for patient transfers with connected porters<br>Have an efficient website for patient navigation<br>Provide digital time travelling applications to all patients to expedite transfers<br>Use more cleaningstaff to quickly enable beds before transfer |