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Clinicians, Consumers, Evidence
Centre for Clinical Effectiveness

Rapid Literature Review 2015

Hospital winter strategies: A rapid literature review

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ABSTRACT

Background

This rapid literature review was undertaken to inform Monash Health about how to manage health service delivery during the winter season.

Objective

This literature review aims to identify various winter strategies currently used in hospitals.

Methods

Peer reviewed and grey literature published from 2008-2015 was identified to inform this review.

Results

The literature reported that several organisational strategies are put into place to cope with the additional pressures to a hospital during the winter period. These strategies affected different levels and settings within the organisation. The main categories of strategies included: Internal organisational strategies; External partnership and support; Predictive modelling; and Quality improvement programs. Specific aspects of the strategies and how they were operationalised are provided in Table 1.

Table 1. Overview of categories of winter strategies

Main categories of strategies	Specific aspects of the strategies
Internal organisational strategies	Governance [1-4] Consideration of the following organisation-wide strategies: • Accountability framework to manage winter performance and how the board holds the executive team/executive lead to account • Ensure that quality and patient safety is maintained • Addressing and committing to required costs • Use of a risk register • Building internal capabilities
	Effective bed management: [3-10] • Planning for increased bed requirements • Strategies and/or key initiatives to enable effective bed management

	Improving patient flow: [3, 7, 9-14] • System-wide / pathway level planning • Addressing discharge processes • Addressing medical assessments • Targeting ward-based processes • Reducing access block • Other strategies that improve patient flow
	Effective workforce planning: [1, 3, 4, 6, 9, 15] • Recruiting additional staff • Matching specialist medical capacity to patient demand • Changing current working practices
	Effective infection control and immunisation: [1, 2, 5, 6, 8, 15, 16] • Hand hygiene programs • Providing education and communication on preventive measures • Implementing staff immunisation or flu vaccination
	Examples of Winter Contingency [1, 2, 4, 5, 7, 15, 16] • From Australian and UK health services
External partnership and support	To reduce unnecessary emergency admissions, hospitals may partner with non-hospital services or key economy partners to provide services to support patients and assist with avoiding the need to attend hospital. [1, 2, 8, 9, 16]
Predictive modelling	Patient prediction admission tool is a validated tool that allows hospital management to accurately forecast service demands for inpatient and ED beds, well in advance. [17]
Quality improvement programs	Flow, Cost, Quality Program: [13, 14] The Health Foundation (UK) focuses on quality improvement where solutions are not limited to the winter season. The program aims to ease winter pressures on accident and emergency departments by examining patient flow through the emergency care pathway, and developing ways to better match existing capacity to demand through the system.

Conclusion

Strategies identified in this review involve organisational, system-wide or pathway level interventions. [14] Most of the literature included in this review originated from Australia and the UK. Categories of winter strategies were categorised according to approaches that could be conducted from within a hospital, strategies that utilised external partnership and support, application of predictive modelling tools when planning for winter peak periods and the conduct of quality improvement programs to focus work on clinical areas under the most pressure during winter.

A comprehensive overview from the Health Foundation described the important need for a detailed analysis to be performed along with a diagnosis of where system "bottlenecks" lie when strategies are planned. [13] Plans should be monitored on a regular basis [1, 4] and reviewed annually, [5] and lessons need to be learnt from past experience. [1] It is important that hospital proactively work with external partners across health and social care for communication strategy and joint action plan [2, 4, 9] for the delivery of truly integrated healthcare during peak demand. [16]

Detailed Report

Background

The Centre for Clinical Effectiveness (CCE) received a request from Senior Clinical Director, South East Sector for a rapid literature review on hospital winter strategies.

Objective

This literature review aims to identify hospital winter strategies.

Review questions

What are current winter strategies of hospitals?

Methods

Table 2. Inclusion criteria for the review

Population	**Inclusion:**	Winter strategies
	Exclusion:	Other strategies not related to winter
Outcomes	**Inclusion:**	Strategies on bed management, patient flow, workforce planning, infection control, staff immunisation, adverse weather plans, winter escalation plans, and external partnership
	Exclusion:	Strategies on management of specific disease outbreaks
Setting	**Inclusion:**	Hospitals
	Exclusion:	General Practices, ambulatory and other clinics
Publication Details	**Inclusion:**	Qualitative and quantitative systematic reviews, literature reviews, observational and descriptive studies and hospital reports; published in English
	Exclusion:	Other study designs, non-English publications and animal studies
Publication Dates		2008 – Present (20 May 2015)
Databases searched		Google and Google Scholar

Search strategy

A comprehensive search of articles in English from 2008 – 2015 was conducted using Google and Google Scholar. Qualitative and quantitative systematic reviews, observational studies, hospital reports and literature reviews were included.

Studies were screened for inclusion or exclusion in consultation with colleagues, using the inclusion, exclusion and appraisal criteria established *a priori*. A narrative synthesis of the results of included studies was conducted.

Risk of bias

The methodological quality of included studies was not assessed.

Results

The database search identified 17 records which met the inclusion criteria.

Summary of results

Organisational strategies are put into place to cope with the additional pressures to the ED and hospital during the winter period. These include governance strategies (i.e. involving executive management and Trust Board); [1-4] strategies to enhance bed management [3-10] and improve patient flow; [3, 7, 9-14] strategies that involve effective workforce planning [1, 3, 4, 6, 9, 15] and effective infection control; [1, 2, 5, 6, 8, 15, 16] strategies that include detailed winter contingency plans, [1, 2, 4, 5, 7, 15, 16] as well as those that involve external partnership and support. [1, 2, 8, 9, 16] Predictive modeling is also used for effective hospital planning of emergency and elective admissions. [17] The Health Foundation (UK) focuses on quality improvement (flow, cost, quality program) where solutions are not limited to the winter season. [13, 14] The program aims to ease winter pressures on A&E departments by examining patient flow through the emergency care pathway, and developing ways to better match existing capacity to demand through the system.

Table of results

Table 3. Narrative synthesis of the winter strategies used by hospitals

1.	Internal Organisational Strategies
1.1	**Governance**
1)	NHS Trust Chair/Chief Executive reviews and approves the winter and influenza plans. [4]
2)	A clear description of accountability framework in place to manage winter performance and how the board holds the executive team/executive lead to account. [4]
3)	NHS Trust management team monitors daily management and escalation plans, which include the process of daily/weekly performance and capacity management. [1, 4] Escalation plans are adequately described; the Trust is clear of risks and associated mitigation actions as well as process for engaging partners. [4]
4)	Details to ensure that quality and patient safety (patient outcomes and experience) does not deteriorate during the winter season. [4] Focus on patients' needs and views about their care. [3]
5)	A non-recurrent cost may be committed to support the proposed plans over the winter period. [1] Any additional investment is outlined where the NHS Trust describes where additional resources are targeted and provides evidence of the contribution to the Trusts capacity to deliver and sustain quality care. [4]
6)	Perform small scale testing on small ideas and changes before implementing on a larger scale hospital-wide. [3] A process for stress testing (i.e. testing of scenarios and identify potential risks) and lessons to be included in winter plan. [1, 4]
7)	Key risks and challenges are managed via a corporate risk register. [4]
8)	Working with complex change requires expertise hence both internal knowledge as well as external viewpoints facilitate the work needed across organisations and agencies for improvement. [3]
9)	Build up internal capabilities for the work to be sustainable. Identify key staff to impart knowledge and skills and give time for ongoing improvement. [3]
10)	Business continuity plan where Human Resources monitor staff absences, and introduce policies to promote attendance, as well as provide advice in events of severe weather. [2] Part of the business continuity plan also includes staff immunisation (Section 1.4) and external partnership (Section 2). [2]
1.2	**Effective bed management**
Risks associated with persistent bed shortage are high over winter months. To deal with bed shortages, patient	

dissatisfaction and overcrowding wards, effective bed management strategies have been put into place.

1.2.1 Planning for increased bed requirements

Increased bed requirements for assessment units, inpatient beds and critical care for the winter period were calculated. Bed requirements were distributed among different wards with additions to some wards and planned expansion of medical beds over 18 months. [4]

Similarly other hospitals planned for an increase in inpatient bed capacity distributed among various wards [6-10], where the implementation of the capacity depended on the pressures that were assessed weekly, [7] and additional beds were opened temporarily, [10] or where needed. [6]

Increased bed requirement may also be met by the opening of special wards or facilities/units in the hospital. Examples of this include a winter ward; [7] 'intermediate care' ward (to support patients who need short-term rehabilitation or recuperation); [6] new ambulatory care units (to allow more patients to have urgent assessment and treatment without having to be admitted and to stay overnight); [6] as well as the development of a Frailty Unit for elderly patients. [3] The University College London Hospital (UCLH) manages their own Care of the Elderly step down ward, Urgent Treatment Centre (for patients needing urgent care), Clinical Decision Unit facility (for patients needing to stay in the department for up to 12 hours), as well as a new Mental Health Patient Assessment Area. [9]

1.2.2 Strategies and/or key initiatives to enable effective bed management

1) Placing patients waiting for more than six weeks non-weight bearing for surgery and rehabilitation by transfer to "transitional care beds" in residential care. [10]
2) Trialling a surgical discharge lounge to "free-up" beds in surgical wards between 0800-1600 hours when surgical occupancy is at its highest. [10]
3) Reducing length of stay by implementing an Enhanced Recovery After Surgery (ERAS) programme in general surgery and additional acute surgical lists per week to reduce acute patients waiting in beds for a space on acute theatre lists. [10]
4) Minimising pre-operative bed utilisation by elective inpatients through more day-of-surgery-admissions (DOSA). [10]
5) Review of eligible day case surgery rates. [10]
6) Using transfer nurses to assist with admitting patients to a bed without delay. [6]
7) Using alternatives to an acute hospital bed, (i.e. patient hotel, outpatient IV antibiotic service, rapid access clinics) through external partnership and support. [9] More examples on strategies involving external partnership are mentioned in Section 2.
8) Creating a surgical 23-hour stay facility so that patients having minor surgical procedures can recover and go home without having to be admitted to an inpatient ward. This will free up inpatient ward beds for the more acutely unwell patients. [9]
9) Reducing hospital admissions [1] by promoting higher use of primary options in acute care. [10]
10) Utilising predictive planning tools (Section 3) to forecast demands. [5]

1.3 Improve patient flow

1.3.1 System-wide / pathway level planning

The main methods about changing patient flow at an organisational, system-wide or pathway level include: [14]

1) Addressing variation, often using systematic continuous quality improvement approaches such as Lean/Six Sigma
2) Real-time management by applying data and assessing priorities
3) Matching capacity and demand, including workforce initiatives such as adding capacity, changing skill mix and using new roles such as patient flow co-ordinators
4) Proactively planning discharge
5) Pulling rather than pushing people through the system, such that the next link in the chain is actively seeking to

move people onwards.

It is important to note that the above-mentioned approaches are not mutually exclusive. [14] More details on the Flow Cost Quality Programme are described below in Section 4. [13]

1.3.2 Improvements to discharge processes

1) The provision and movement of discharge lounges. [7]
2) Switching to a model of 'discharge to assess' where patients are discharged once they are medically fit and have an assessment. [3] The change has truncated a discharge process of up to two weeks to care packages being put in place directly with the patient at home, enabling certain units to reduce length of stay and therefore shortening the overall patient pathway. This model, however, requires post-discharge services to deal with the demand from this process. [3]
3) Active improvement work on discharge planning/transfer of care to reduce average length of stay, including movement of discharges to earlier each day i.e. 1100. This improves patient flow at the time of day when occupancy is at its highest. [10]
4) Improving turnaround of patient medications needed on discharge. [9]
5) A team of discharge specialist nurses supporting the ward nurses to plan for complex discharges and help patients get ready to go home.[9]
6) Putting in place a multidisciplinary assessment team. 'Front Door Response Team' (FDRT). However the dispersed nature of the admission units often led to delays in accessing the service once the patient had been identified for discharge. [3]

1.3.3 Improvements to medical assessments

1) Bringing senior clinical assessment to the front end available to assess patients earlier and 'pull' patients through the system. [12]
2) Matching consultant availability to patient flow where senior medical availability from 8 am to 8pm ensured that patients were being assessed and put on the right care management plan on the day they presented. The presence of senior clinicians also provided greater leadership and guidance to the junior team. [12]
3) Establishing a medical assessment unit (MAU) focused on frail older people. Co-location of all the specialist, medical, nursing and therapist staff who deal with frail older people, thus improving communication and team working. [3]

1.3.4 Improvements to ward-based processes [12]

1) Changing job plans to enable a 'consultant of the week' who is responsible for all the patients on the ward, providing increased continuity, senior decision making and communication.
2) Introducing daily ward or board rounds where daily review of patients' progress with early assessment on MAU and specialty pull overtaking the traditional bed management.
3) Introducing an electronic work management system providing effective visual communication to support more efficient management of workflows across different members of the multidisciplinary team.
4) Reducing the bottleneck in the take-home medications process by introducing electronic prescribing, which takes place during the ward round so that scripts are immediately available to the pharmacy department; and changing the portering routine to include more delivery instead of a single delivery batch.

1.3.5 Reducing access block [11]

A literature review published by the University of New South Wales and Simon Centre (2008) identifies strategies to prevent/resolve access block and improve patient flow. Access block and overcrowding are associated with seasonal changes reflecting the demand for inpatient beds. Initially these were occasional peaks in winter, but over time they started occurring in summer to the point that in some hospitals they are seen all year round. In fact, some elderly or fragile patients who are suffering from chronic cardiac and respiratory conditions tend to increase ED demand in winter. The review focuses on national and international studies exploring issues surrounding the concepts of access block and overcrowding, policy changes and alternatives for access block in ED.

Some effective measures to resolve access block include: [11]

1) Interventions such as developing transit lounges; observation wards; holding bays; and redesigning ED facilities improve patient flow. Initiatives, such as improving communication systems and applying learning organisation principles are also effective at improving ED patient flow.

2) Historical and prospective data show that reducing bed occupancy rates towards 85% allows patient transfer to the wards, which in turn, frees up EDs, so that patients who are waiting can be seen and processed, reducing ED length of stay, ambulance diversion and theatre cancellations.

3) A reduction of waiting time in the ED (to less than 120 minutes) could have increased ED treatment capacity by 10,400 hours per year with an estimated cost of US$4 million in 2004-2005. Therefore any initiative devoted to address this problem is highly cost-effective.

4) Other interventions to reduce hospital admissions include chronic disease management, home support initiatives such as the hospital in the home program, specialist community care, and discharge planning

5) Other initiatives used to reduce access block include transit lounges, observation wards, short stay wards and holding or transit bays.

6) Increasing staff capacity (i.e. increasing working hours, or employing care coordinators, community nurses, ED nurses or additional medical officers at night) reduces ED length of stay.

7) Bedside registration improves patient flow. The process consists of registering ED patients in the clinical care area, in order to reduce registration delays and allow clinical evaluations earlier. This intervention reduces total ED time, but is not sustainable as a single intervention.

8) Mental health patients benefit from the co-location of psychiatric emergency services within the ED. The service improves clinical care for patients and the emergency department by using direct access to reduce access block.

1.3.6 Other strategies that improve patient flow

1) Merging inpatient and outpatient care in the Frailty Unit for more immediate care of elderly patients by geriatric specialists. Significant delays for elderly patients being referred by GPs for outpatient appointments meant that GPs sometimes have no option but to send frail elderly patients as emergency cases to the hospital. There is no difference in the process of care that these elderly patients require as an emergency patient or as an outpatient. [3]

2) Developing new pathways to manage some patient conditions. The 'Rapid Assessment and Treatment', 'See and Treat and Streaming' teams help reduce the time patients spend in the emergency department. [9]

1.4 Effective workforce planning

1.4.1 Recruiting additional staff

Some hospitals may [4, 9] or may not [1] choose to recruit additional staff during the winter season to cope with unplanned absences of staff and increased hospital admissions. The appointment of additional nurses provides support seven days a week to inpatients with mental health needs', additional staff meet the increasing Hyper Acute Stroke Unit (HASU) patient demand, including improve timely transfer from the HASU to local stroke units; additional clinical site manager on duty at night helps with managing emergency admissions and support to wards overnight; additional administrative staff assist with maintaining a real-time bed state, 24/7. [9] The RW NHS provides details on their winter staffing plan and how it aligns with the predicted demand for services. [4] (http://www.royalwolverhamptonhospitals.nhs.uk/pdf/10.3_Winter%20Operational%20Plan.pdf). [4]

1.4.2 Matching specialist medical capacity to patient demand [3]

1) Changing consultant working patterns from 'post-take' to 'on-take' through a job planning process; changing the timetable of consultant activities and increasing senior medical staff availability to meet patient demand as it occurred. This prevents delays and potential safety issues inherent in 'storing' patients in the medical assessment unit (MAU) overnight. This meant extending the on-call service to 8 pm and increasing weekend cover from 8 am to 5 pm.

2) Seeing patients in real time, on admission. Consultants (geriatric medicine specialists) available 'at the front door' assessing patients as soon as investigations are done and enough clinical information is available. This is

10 to 20 hours sooner than in the previous system of post-take daily ward rounds.

3) Pooling junior doctors to review patients within the hour and eliminating 'wasteful' repeated assessments that were not adding value.

1.4.3 Changing current working practices

1) The model of "doing today's work today" makes small alterations to working practices. Phlebotomists and laboratory technologists agree to start the day earlier, allowing laboratory staff to process blood samples as they come in, instead of waiting for a large batch in the afternoon. The results are made available before doctors leave wards. Up-to-date results mean that consultants are able to make quicker and safer clinical decisions for patients. [12]

2) Extending older people's rapid assessment service and cancer assessment units to seven days a week. [6]

3) Additional consultant cover in place on weekends to support the acute medical unit and medical patients in specialist wards. [9]

1.5 Effective infection control and immunisation

1) Education and communication on preventive measures for risks of infections. [5] Campaign banners and media launches advising how to stop the spread of viruses. [1]

2) Hand hygiene stations at all hospital entry points, ED waiting room and clinic areas. [5]

3) Additional hotel services resource to support higher levels of terminal cleaning on inpatient wards during infection outbreaks. [15]

4) Staff immunisation or flu vaccination is currently practiced in many hospitals during the winter season. [1, 2, 5, 6, 8, 15, 16]

5) Part of the ACT Winter Plan is the development of a seasonal influenza work plan which involves a National immunisation Program flu vaccine distribution to ACT immunisation providers [5]. Ongoing communication and promotion (in the form of letters and/or advice) to target groups such as centres for aged care, child care and high risk populations (i.e. pregnant women; Aboriginal and Torres Strait Islanders). [5]

1.6 Examples of Winter Contingency Plans

1) ACT Health Sector Winter Plan 2014 [5]

2) Gloucestershire Hospitals NHS Foundation Trust Winter Plan 2014/2015 [1]

3) The Newcastle upon Tyne Hospitals NHS Foundation Trust Operational Resilience Planning Winter Contingency 2014-2015 [15]

4) NHS Orkney Winter Plan 2014/15 [2]

5) The Royal Wolverhampton NHS Trust Winter Operation Plan (2013) [4]

6) When pressures arise during winter, the Winter Contingency Plan and escalation plan is implemented. Refer to page 43 of Exhibit 8 of The Newcastle upon Tyne Hospitals NHS Foundation Trust Bed Management Policy. [7]

7) The 'Winter 2015 - Maintaining Performance' initiative, facilitated under the Whole of Health Program (WOHP), brings together all relevant stakeholders (Local Health Districts, Specialty Health Networks (SHNs), Ambulance Service of NSW and Healthshare) to drive the delivery of truly integrated care from a State perspective during winter peak demand. Escalation plans and supporting documentation of strategies planned for maintaining performance through the winter period were reviewed to identify best practice in escalation planning and business continuity strategies. Results and publications from the "Winter 2015-Maintaining Performance Forum" were not available at the time of this review. [16]

2. External partnership and support

To reduce unnecessary emergency admissions, hospitals may partner with non-hospital services [9] or key economy partners [4] to provide services to support patients and assist with avoiding the need to attend hospital.

External support and partnership strategies include:

1) Acute bed capacity being made available earlier by transferring medically stable patients to a home service,

where post-acute care can be provided in their own home. [9]

2) Collaboration with the homeless charity pathway to set up a medical respite centre in a nearby hostel, so homeless patients can leave the acute ward and be cared for in a suitable environment. [9]

3) Using non-hospital bedded ward for the winter months to support further step down or rehab needs for patients. [9]

4) GP triaging patients at the front door of the ED to redirect them to more suitable primary care services and/or rapidly seeing and treating them. [9]

5) Promote self-care [8] and early communication with GP [16] before going to the ED; this keeps the ED only for emergencies.

6) Communications to the general public that promote alternatives to the ED [1]

7) Contractual requirements for independent primary care contractors who are willing to support the NHS to provide out-of-hour services. [2]

3.	Predictive Modelling

The CSIRO (2013) Patient prediction admission tool (PAPT) is a validated tool that uses historical data to provide an accurate prediction of not only the expected patient load but their medical urgency and specialty, and how many will be admitted and discharged. It allows hospital management to accurately forecast service demands for inpatient and ED beds, well in advance. Enables proactive bed management strategies and scheduling of more elective surgeries for quieter times. This Patient prediction admission tool (PPAT) by CSIRO [17] may forecast up to six months in advance enabling a hospital to be prepared for events such as the winter influenza. This has led to much better "hospital planning of emergency and elective admissions". The tool allows patient flow visualisation (i.e. inpatient and emergency department patient flow trends over selectable time periods; a day, a week, a month or a year. occupancy, ED and inpatient arrival and discharge rates (patients per hour/day/week etc) and lengths of stay, which can be filtered by all available fields in the data (e.g. by age, elective status, primary diagnosis, etc). [17]

4.	Quality improvement programme

4.1	Flow, Cost, Quality Programme

The winter pressures on A&E departments could be eased by examining patient flow through the emergency care pathway, and developing ways to better match existing capacity to demand through the system. Delays and queues build up when staff, equipment, diagnostics, resources, treatment or beds are not available promptly — resulting in gridlock in the system. This leads to poor quality services for patients and frustration for staff.

The addition of resources to meet the demand in healthcare may not always be realistic and therefore it is essential that the service considers how access and patient outcomes can continue to improve with less resource; how the cost is affected when timeliness and quality of care is improved. The Flow Cost Quality improvement programme was developed to explore these questions. More details may be found in the Learning report published by The Health Foundation. [13]

The Health Foundation highlights the following to improve patient flow: [13]

1) Working on flow is crucial.

   Patient flow is crucial to reducing avoidable harms and deaths. Improved flow reduces healthcare costs due to less delay; shorter lengths of stay; lower rates of bed occupancy and re-admissions; and improves patient and carer experience.

2) Measurement and analysis is key.

   Shift from comparative data to presenting it in time series and using statistical methods in its analysis. This enables understanding of where the problems lie and the impact of interventions both internal and external to the organisation. For example, plotting deaths by date of admission (rather than the traditional way by date of discharge) reveal a relationship between poor flow and clinical outcomes. When emergency flow is poor (as indicated by breaches of the A&E target), death rate increases. This enables the team to monitor the impact (intended and unintended) of the changes they make to care processes on these crucial measures of system performance

3) Involve stakeholders 'up and down' stream to identify problems

Different stakeholders involved 'upstream' of the hospital process (primary care, ambulance service) as well as those 'downstream' (intermediate and social care) are needed. Each brings different perspectives, motivations and expertise, and all have a limited view of the whole system, based on their particular role or function.

4) Use a combination of changes

Redesign of flows in and out of the hospital include considerations of GP referrals, transports and social services; patient assessment and care planning; merging of flow where process, skills and equipment are the same; improving turnaround time in the wards, pharmacy and diagnostic tests; and creating 'pull' systems for discharge services (where nursing and residential homes contact the discharge teams for more patients and the 'discharge to assess' process).

Discussion

Many strategies that were discussed in the review were part of organisational board recommendations and document plans. [1, 2, 4-6, 8-10, 15] Only selected literature [3, 12, 13] and one board report [1] evaluated the impact of the strategies on their objectives (i.e. improving patient flow) [3, 12, 13] and measured outcomes (i.e. ED admissions and overcrowding). Only one review discussed the effectiveness of the strategies on reducing assess block or overcrowding in the hospital. [11] In one case study, overall improvements in emergency flow and a fall in emergency bed occupancy were observed. [12] The Trust was able to treat more patients without increasing the overall bed base, although it was not possible to carry out plans to close winter capacity due to the growth in emergency admissions. [12] Two case studies evaluated the impact of strategies on improving patient flow to enhance quality of healthcare not only limited to the winter season. [13]

Limitations

The search for studies was conducted in online Google/Google Scholar only. Other medical databases may provide more sources of quality measures. As this rapid literature review was "fit for purpose", the evidence that included hospital reports and board recommendations (low level evidence) were not peer-reviewed neither was the impact of these strategies assessed or evaluated for their effectiveness on achieving desired outcomes during the winter season. As many of these strategies were not evaluated quantitatively on their effects; this limitation needs to be considered when implementing these strategies.

Conclusions

Strategies identified in this review involve organisational, system-wide or pathway level interventions. [14] Most of the literature included in this review originated from Australia and the UK. Categories of winter strategies were categorised according to approaches that could be conducted from within a hospital, strategies that utilised external partnership and support, application of predictive modelling tools when planning for winter peak periods and the conduct of quality improvement programs to focus work on clinical areas under the most pressure during winter.

A comprehensive overview from the Health Foundation described the important need for a detailed analysis to be performed along with a diagnosis of where system "bottlenecks" lie when strategies are planned. [13] Plans should be monitored on a regular basis [1, 4] and reviewed annually, [5] and lessons need to be learnt from past experience. [1] It is important that hospital proactively work with external partners across health and social care for communication strategy and joint action plan [2, 4, 9] for the delivery of truly integrated healthcare during peak demand. [16]

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References

1. Gloucestershire Hospitals NHS Foundation Trust. Winter Plan 2014/2015. UK: Gloucestershire Hospitals NHS Foundation Trust, Delivery DoS, Nursing Do; 2014 Sept 2014. Report No.
2. NHS Orkney. NHS Orkney Winter Plan 2014/2015. UK: NHS Orkney, 2014 Contract No.: Version 1.1.
3. Sheffield Teaching Hospital. Improving the flow of older people: Sheffield Teaching Hospital NHS Trust's experience of the Flow Cost Quality improvement programme. Case Study. UK: The Health Foundation, 2013 Apr 2013. Report No.
4. The Royal Wolverhampton NHS Trust. Winter operational plan. UK: The Royal Wolverhampton NHS Trust, Compliance P; 2013 23 Sept 2013. Report No.
5. Calvary Health Care, Medicare local, ACT Goverment. ACT Health Sector 2015 Winter Plan. In: Health Do, editor. Version 1.1 ed. ACT2015.
6. Imperial College healthcare NHS. Winter Plans: Imperial College healthcare NHS,; 2015 [cited 2015 20 May]. Available from: http://www.imperial.nhs.uk/patients/winterplans/index.htm.
7. Newcastle upon Tyne Hospitals NHS Foundation Trust. Bed Management Policy. Policy document. Bed Management Policy, 2014 Dec 2014. Report No.
8. The Mid Yorkshire Hospital NHS Foundation Trust. Trust makes preparations for winter UK2015 [cited 2015 20 May].
9. University College London Hospitals NHS Foundation Trust. 2014/2015 Winter Resilience Plan: University College London Hospitals NHS Foundation Trust,; 2015 [cited 2015 20 May]. Available from: https://www.uclh.nhs.uk/aboutus/wwd/Pages/Winterpreparedness.aspx.
10. Waitemata District Health Board. Recommendations to Board: Bed Forecasting to 1st July 2011. Board meeting paper. Finance; 2011 Feb 2011. Report No.
11. Forero R, Hillman KH. Access block and overcrowding: A literature review. Literature Review. Simpson Centre for Health Services Research,
South Western Sydney Clinical School,
University of New South Wales,, 2008.
12. South Warwickshire NHS Foundation Trust. Unblocking a hospital in gridlock: South Warwickshire NHS Foundation Trust's experience of the Flow Cost Quality
improvement programme. Case Study. The Health Foundation, 2013 Apr 2013. Report No.
13. The Health Foundation. Improving patient flow: How two trusts focused on flow to improve the quality of care and use available capacity effectively Learning report. UK: The Health Foundation, 2013 Apr 2013. Report No.
14. The Health Foundation. Improving patient flow across organisations and pathways. Evidence Scan. UK: The Health Foundation, centre Te; 2013 Nov 2013. Report No.
15. Newcastle upon Tyne Hospitals NHS Foundation Trust. Winter contingency planning 2014-2015. Board paper. UK: Newcastle upon Tyne Hospitals NHS Foundation Trust
Council of Governors, Services P; 2012 Sept 2014. Report No.
16. New South Wales Government. Winter Wise: New South Wales Government,; 2015 [20 May 2015]. Available from: http://www.health.nsw.gov.au/winterwise/Pages/default.aspx.
17. Dods S, Boyle J, Khanna S, O'Dwyer J, Sier D, Sparks R, et al. Evidence driven strategies for meeting hospital performance targets: The value of patient flow modelling. Report. CSIRO, Flagship CDPaS; 2013 Feb 2013. Report No.