

International comparisons of selected service lines in seven health systems

ANNEX 16 – CASE STUDIES: EMERGENCY PATHWAY AT
CAPIO ST GORAN HOSPITAL

Evidence Report

October 27th, 2014

Why this case study?

Why this case study?

- Capio St Göran (CStG) is a 300-bed acute hospital providing a full range of emergency and elective services in central/suburban Stockholm.
- This case study focuses on the emergency pathway because CStG is recognised locally as delivering a high-performance A&E service
- CStG has developed an operational model that enables high levels of efficiency and quality compared to other acute hospitals in Stockholm county:
 - The public payor (Stockholm health system) pays 10% less than the DRG rate to CStG
 - CStG has the lowest waiting times in A&E compared to peers
 - As good or higher patient satisfaction scores

Issues of comparability

- CStG serves publicly-funded patients on a DRG-based tariff system which is conceptually similar to the NHS
- Although we have not done a full comparison of the emergency case mix of CStG vs NHS, the split of walk-in vs ambulance patients is very similar to a Type 1 A&E in the NHS: 31% ambulance arrivals at CStG compared to 30% in the NHS¹
- Like the NHS, Stockholm has a 4 hour A&E target but this is interpreted more flexibly²

Potential impact on costs

- CStG has a slightly higher physician to nurse ratio in A&E compared to other acute hospitals in the region, and a streamlined approach to triage staffing, which appears to allow for higher patient throughput per FTE (physician and nurse) and more rapid decision-making
- CStG has developed relationships with other providers in the local health economy and sends more elderly patients directly to external geriatric care providers, compared to peer hospitals
- CStG uses IT systems more intensively than peer hospitals to improve coordination and patient flow
- These factors would need to be compared to NHS practice to identify potential efficiencies

Potential impact on quality

- CStG is at least as good (if not better) than other acute hospitals the Stockholm region on several quality dimensions, including:
 - Total time in A&E is 13% below the peer average: 188 mins vs 216 mins
 - Time to be seen by a physician is 46% below the peer average: 46 mins vs 85 mins
 - As good or higher patient satisfaction scores, compared to peers, for respect, trust, access and overall experience

1 Hospital Episode Statistics, 2013/14, HSCIC (Type 1 A&Es only)

2 The target is 79% achievement overall and 71% as a minimum, compared to 95% in the NHS. The payor can impose financial penalties for under-performance but this would usually only constitute only a very small proportion of the overall contract value

Executive summary and description of the emergency pathway at CStG

- Capio St Görän (CStG) serves publicly-funded patients in the Stockholm county region and is **funded by the regional payor on a DRG (activity-based funding) basis**. It provides a broad range of emergency and elective service lines, excluding paediatrics and maternity services.
- Historically, CStG was paid at the regional tariff rate but has recently negotiated **a 10 year contract at 10% below the tariff rate** after the commissioner (Stockholm county health system) put the service out to competitive tender. CStG bid on a discount-to-tariff on the basis of historic achieved efficiencies. While CStG are currently breaking even (with 0% margin) they expect to be able to achieve further efficiency savings during the contract period . In addition, they perform at least as well or better than peer hospitals on quality dimensions including patient experience and waiting times.
- There are a number of factors which support quality and efficiency across the emergency pathway, including:
 - CStG uses the **BedLog clinical information system to manage bed capacity** and admissions to wards. While the system itself is similar to that in use in most hospitals in the region, it is used more effectively and systematically at CStG allowing clinicians to allocate patients to wards directly without the need for a Bed Coordinator
 - CStG has a **slightly higher physician-to-nurse staffing ratio in A&E** which seems to support higher productivity for all staff groups, more rapid decision-making and treatment, and improved patient flow through the department
 - The A&E operates a **differentiated triage process** with an “outer triage” for lower-acuity patients, and three distinct “inner triage” desks for acute medicine, acute surgery and emergency trauma/ orthopaedics. The process and staff mix for each area of triage is adapted to suit the complexity of the case mix of the incoming patients
 - **Patients with some conditions may be admitted directly to the appropriate unit (both within the hospital and at other providers) bypassing the A&E.** This includes patients with stroke and myocardial infarction, but also some geriatric patients and some other patients falling into clearly-defined diagnosis groups

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- **Impact – why this case study?**
- Description – what did they do?
- Enablers – how were they able to do this?

Overview of Capio St Göran hospital

Overview:

- Capio St Göran is a general acute hospital located at Kungsholmen in central Stockholm
- In 2013, it had ~300 beds and ~1850 employees
- Capio has operated the hospital since 1999 and it's current contract with the Stockholm county health system runs until 2022



Financials:

- In 2013 CStG had revenues of ~1.7 bn SEK (£145m¹) and an operating margin ~0%
- In 2012, the hospital had an operating margin of 10% (developed incrementally over time through a series of efficiency programmes). This was used as a basis for negotiating a new 10 year contract with the public payor at a 10% discount to the national tariff rate. CStG anticipates further investment in operational improvements and a return to positive profitability at some point during the contract term. All other acute hospitals in the region are paid at tariff and generate small surpluses/deficits (in the region of up to 2%) or break even

Activity:

- In 2013, the number of outpatient visits was ~200,000, while the number of inpatient visits was ~30,000
- In total CStG had ~70,000 A&E visits in 2013
- In 2013, ~3,000 outpatient surgical procedures and more than 6,000 inpatient operations were performed in the hospital's 12 operating theatres

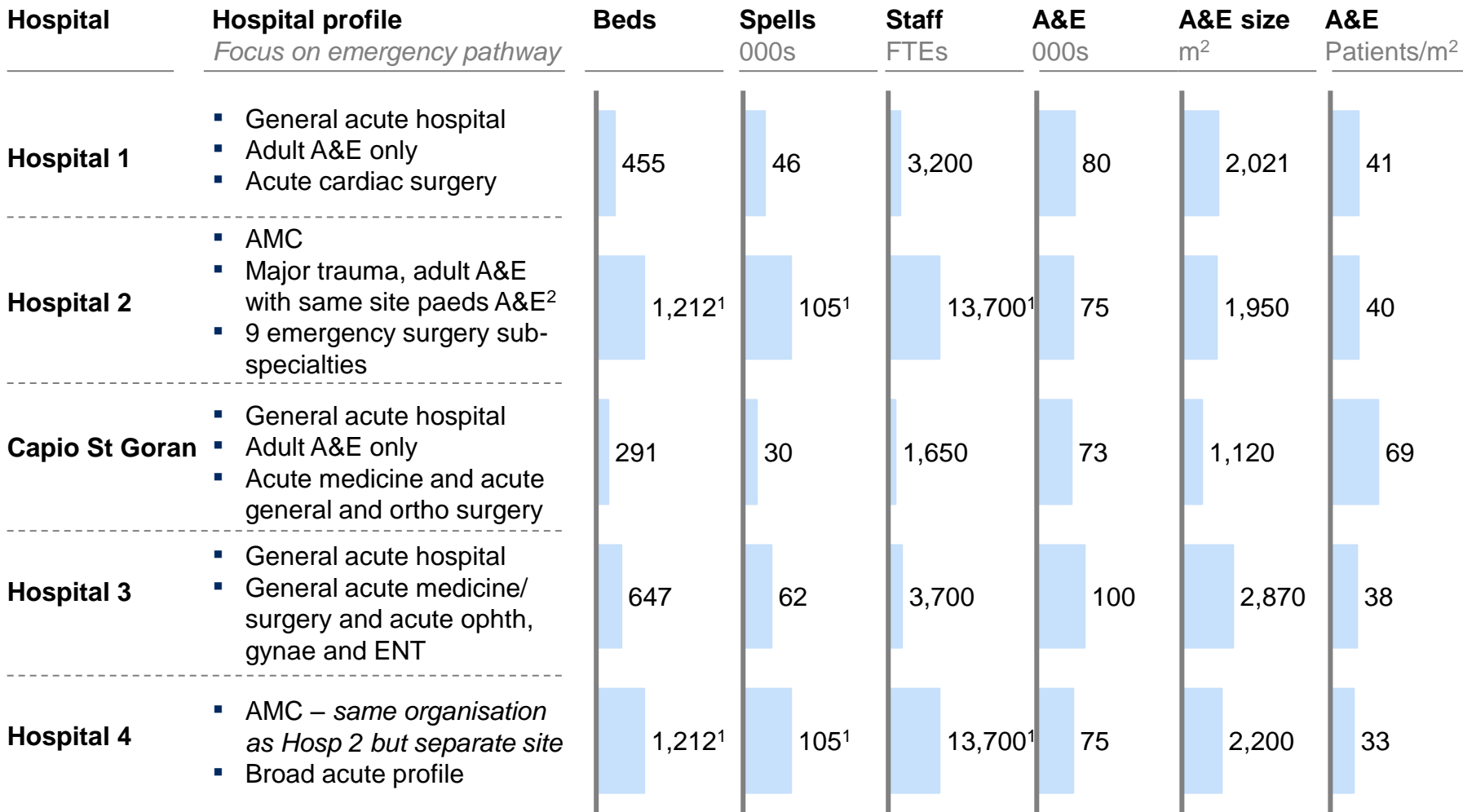
Scope of services:

- Specialties provided: 31 specialties including emergency surgery, acute medicine, trauma/ortho; 8 bed ICU; Foundation Years training posts
- Specialties not provided: paediatrics, maternity

CStG is broadly comparable in terms of size and scale to a small DGH in the NHS

¹ Currency conversion rate: 1 SEK = GP0.0851394

Overview of adult A&Es in Stockholm county



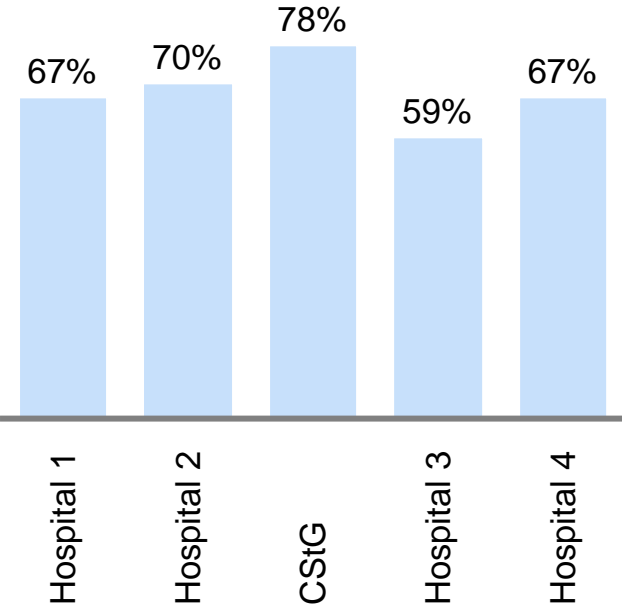
1 Not possible to split beds, spells and staff numbers between Hospitals 2 and 4

2 Managed and run by a separate children’s hospital on the same site complex. All data provided here refers only to the adult A&E

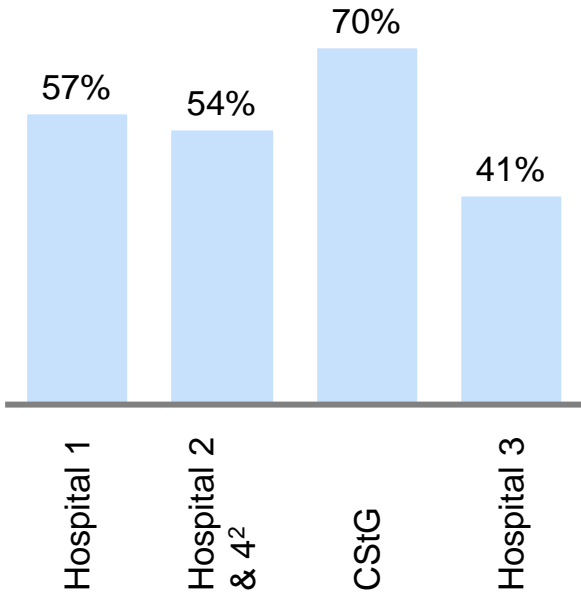
Capio St Göran has lowest waiting times in A&E compared to its peers

Share of patients discharged/admitted within 4 hours at Stockholm's largest A&E units

Adults (all ages) discharged/admitted < 4h
2012; Percent



Patients >80 years discharged/admitted <4h
2012; Percent



- Large differences observed between hospitals in terms of total treatment (arrival to discharge/admission) time
- Elderly patients have longer handling times than other patients. Many hospitals set a lower internal target for elderly patients to allow for higher needs and complexity of diagnosis¹

¹ The lower total treatment times for elderly patients are not indicative of a lower standard for this patient group but rather a recognition that this patient group require on average more investigations and longer observation, and consequently a 4 hour total treatment time target would be inappropriate
² Data not available for each separate site for this measure

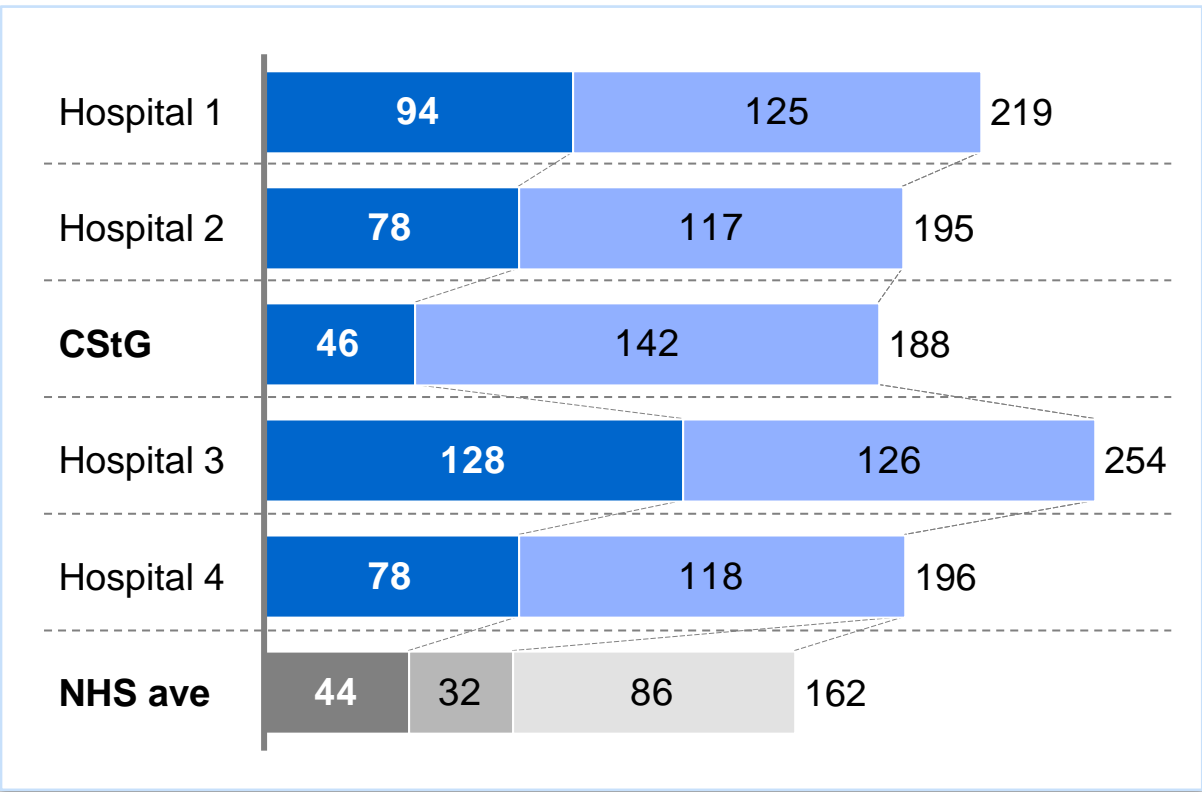
NOTE: Statistics based on benchmarking of acute hospitals with full service A&E departments in the Stockholm county region

SOURCE: HSF central data

Patients at Capio St Göran A&E are seen by a physician significantly more quickly than in other Emergency Departments in the region

Average total treatment time (arrival to departure/admission) at different A&E departments

Minutes; 2012



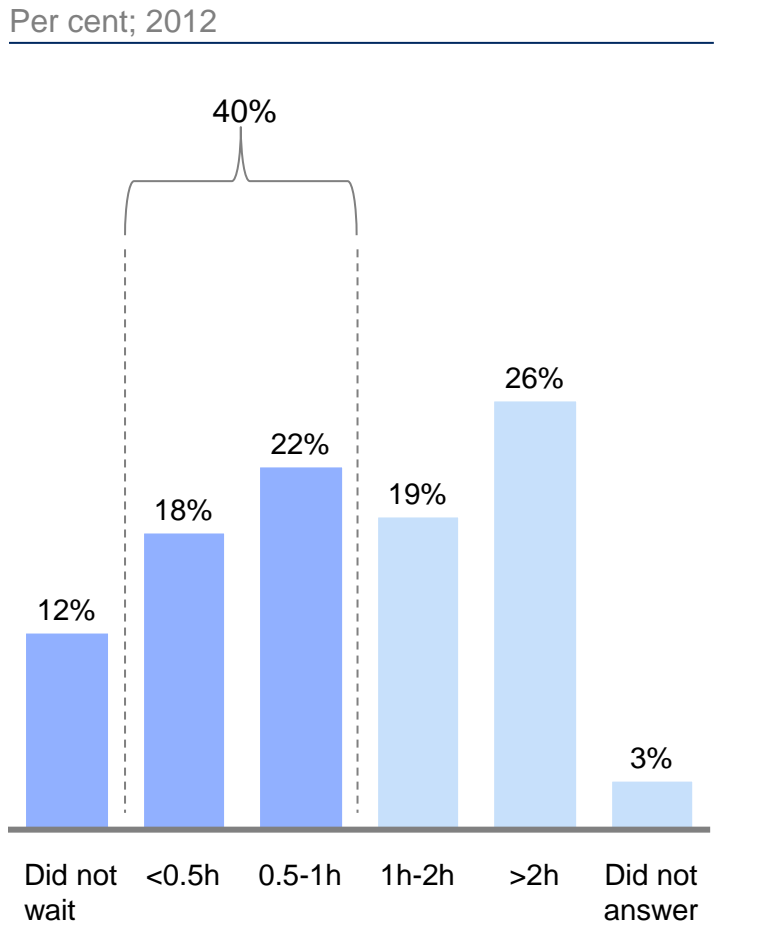
- Time to see a physician
- Time until patient leaves A&E
- Time to triage (NHS)
- Time to treatment (NHS)
- Time until patient leaves A&E (NHS)

- CStG has the lowest total treatment time in Stockholm but this is higher than the NHS average
- Comparisons are difficult due to differences in available data, but it appears that time to first physician contact is likely to be lower at CStG, at 46 mins vs 76 mins for NHS¹
- Reduced time to first physician contact appears to improve patient experience (irrespective of total treatment time)²

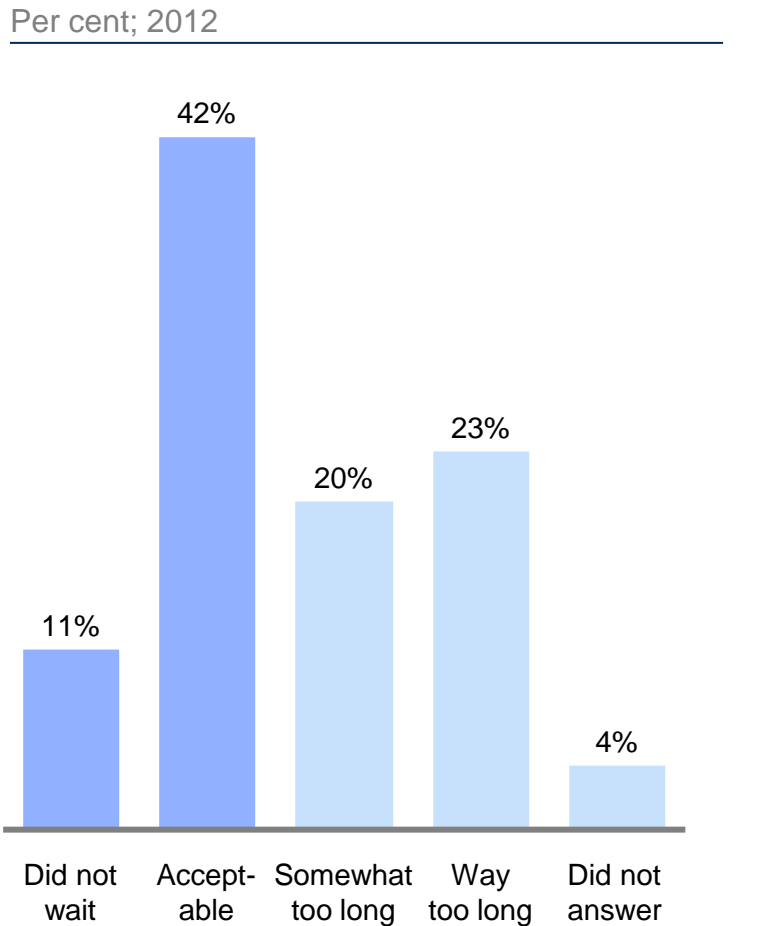
NOTE: Statistics based on benchmarking of acute hospitals with full service A&E departments in the Stockholm county region
 1 NHS records only time to triage (usually performed by a nurse) and time to treatment (which may be performed by a nurse or a clinician)
 2 Findings from local (Stockholm) patient surveys

Surveys suggests that patients find waiting times of up to one hour to see a doctor acceptable

How long did you wait from outer triage until you saw a physician?
Per cent; 2012



If you waited for the physician, what do you think of the waiting time?
Per cent; 2012

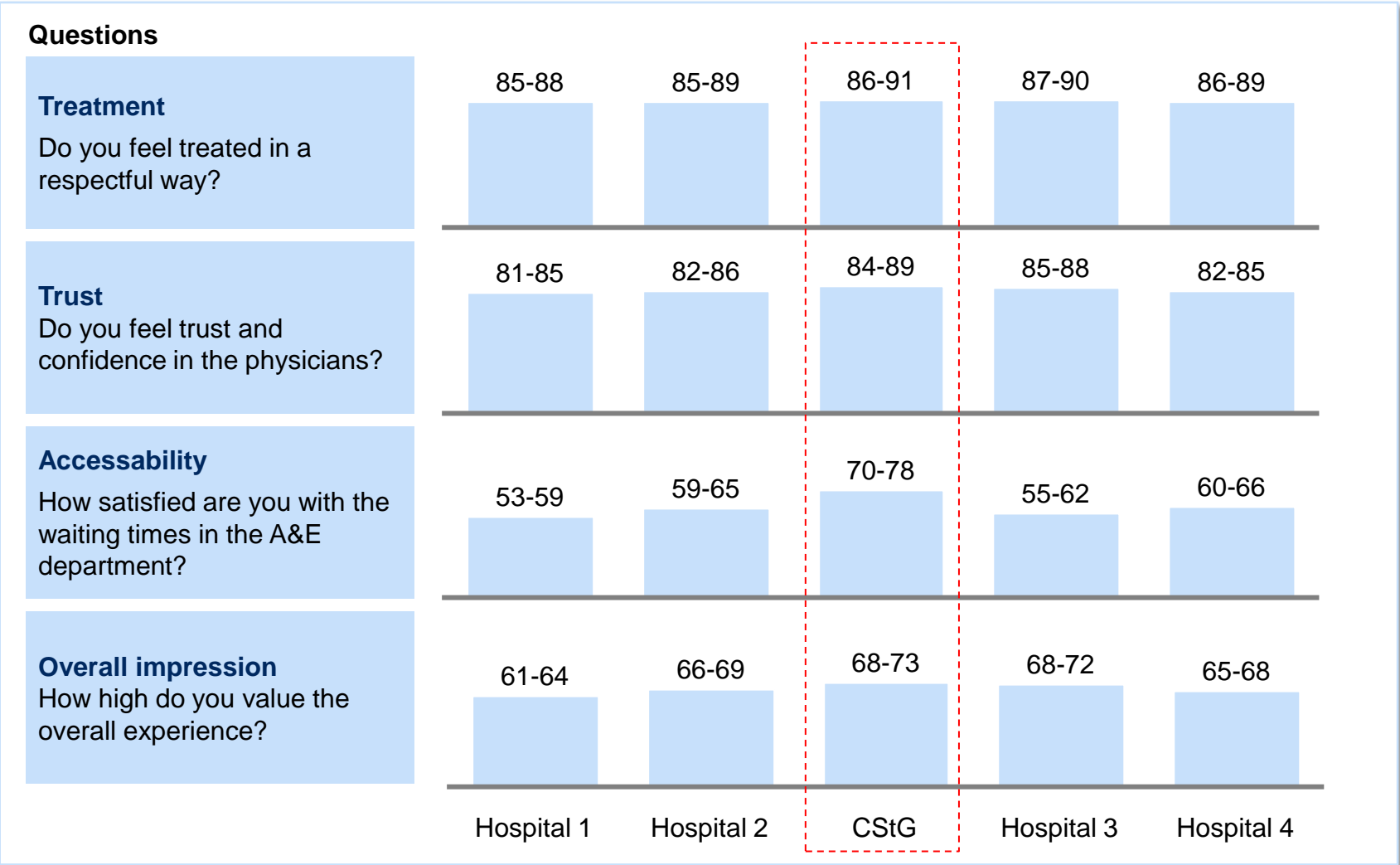


SOURCE: Rapport "Akutmottagningar 2012-10" utförd av Institutet för Kvalitetsindikatorer

Capio St Göran performs at least as well as other hospitals in the national patient satisfaction survey

2012; PUK-score

XX-YY
 XX = Lower confidence interval
 YY = Upper confidence interval



NOTE: Statistics based on benchmarking of acute hospitals with full service A&E departments in the Stockholm county region

SOURCE: National patient survey 2012

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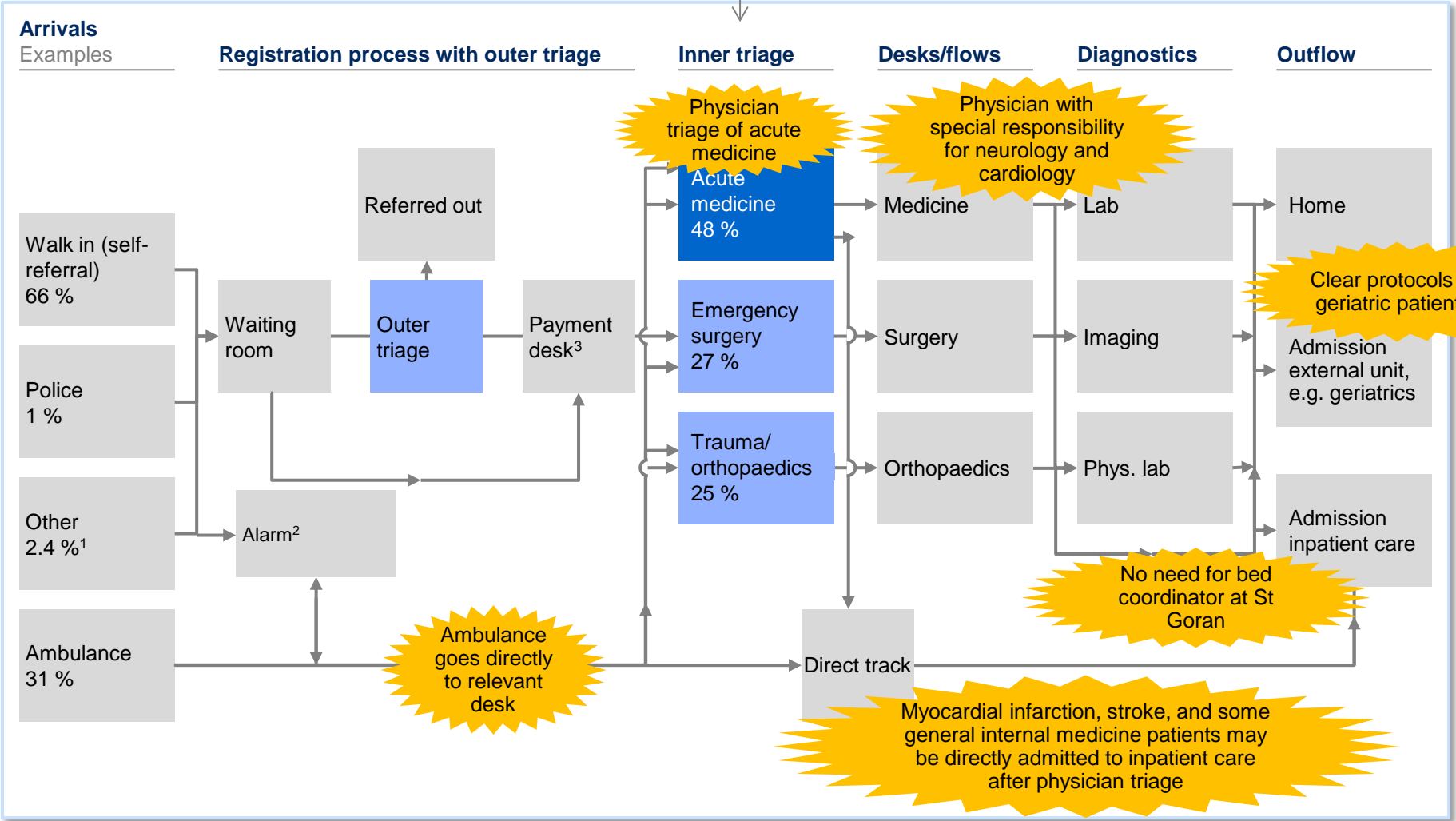
- Impact – why this case study?
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Emergency pathway patient flow at Capio St Görän

Daytime

Main variations in A&E pathway design in Stockholm is around organisation of inner triage

■ = Nurse ■ = Physician + nurse



1 Including helicopter, taxi and assisted travel of elderly 2 Alarm raised by ambulance crew to notify hospital of arrival of major emergencies

3 Mandatory co-pay (~£250) for A&E attendance in Sweden

4 Established pathway for geriatric patients meeting predefined criteria indicating suitability for direct admission to geriatric unit

SOURCE: Local data; Interviews with clinicians and staff conducted by the research team

Capio St Göran has a simpler organisation of inner triage compared to other adult A&E departments in Stockholm

- = Dedicated desk
- = Part of other desk
- = Part of acute desk

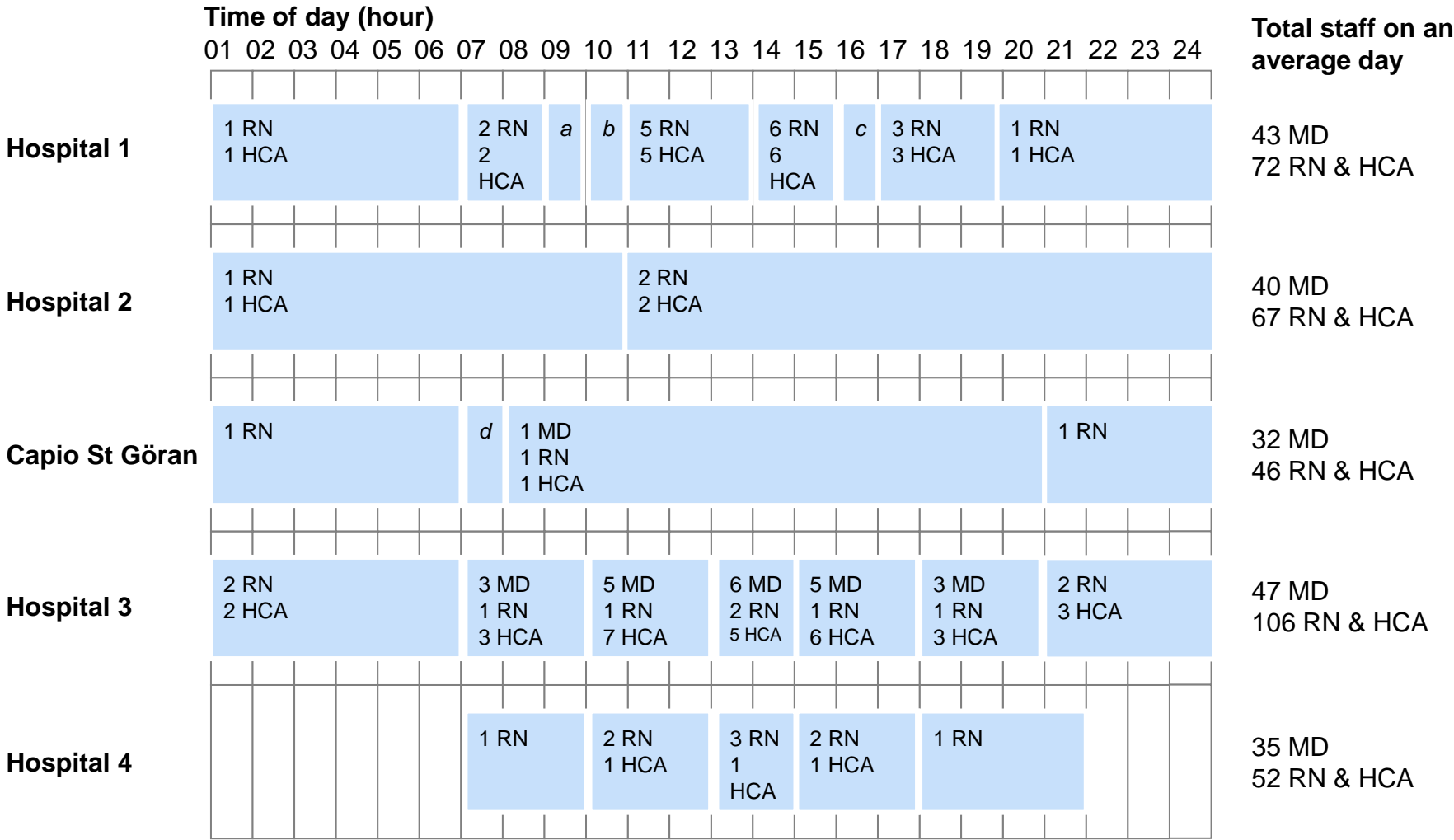
	Hospital 1	Hospital 2	Capio S:t Göran	Hospital 3	Hospital 4
Orthopedics					
Surgery					
Medicine					
Cardiology					
Neurology					
ENT					
Infection					
Oncology					

Note: Does not include paediatrics or emergency gynaecology

SOURCE: Interviews with clinicians and staff conducted by the research team

CStG's staffing of inner triage is also more streamlined than many of its peers

Staffing of inner triage (average)



a 3 RN and 3 HCA
b 4 RN and 4 HCA

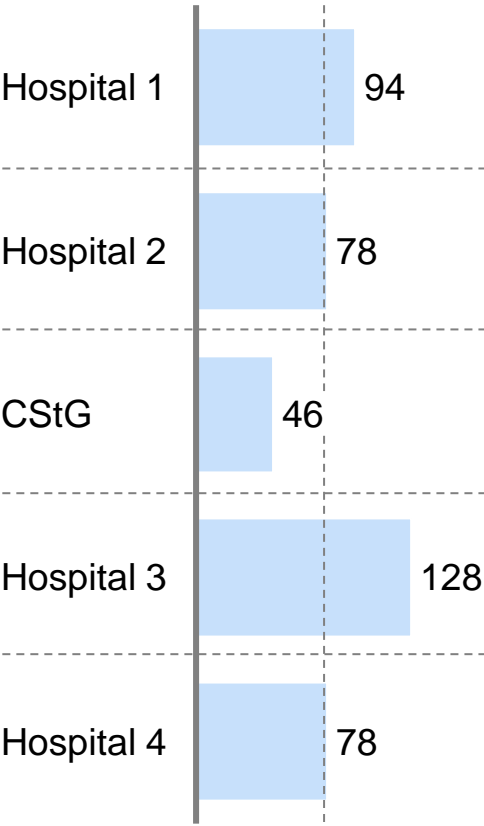
c 4 RN and 4 HCA
d 1 RN and 1 HCA

Note: RN = Qualified nurse; HCA = Healthcare assistant; MD = doctor

SOURCE: Local hospital data

Reduced time to be seen by a physician may be one of the drivers of efficiency at Catio St Göran

Time to be seen by physician Minutes



Inner triage staff mix and roles Daytime

- Low work load:² nurses at each desk
 - Cardiology: physician participates in first assessment at desk
 - High work load:² nurse at central triage
-
- Low work load:² physician/nurse at respective desk
 - High work load:² nurse at central triage
-
- Medicine: team triage
 - Orthopaedics and surgery: nurse at each desk
-
- Nurse triage at each desk
-
- Nurses at each desk

NHS average 76 mins¹

¹ NHS average is based on time to treatment at Type 1 A&E departments in 2013/14

² Each hospital has its own approach to defining low/high workload

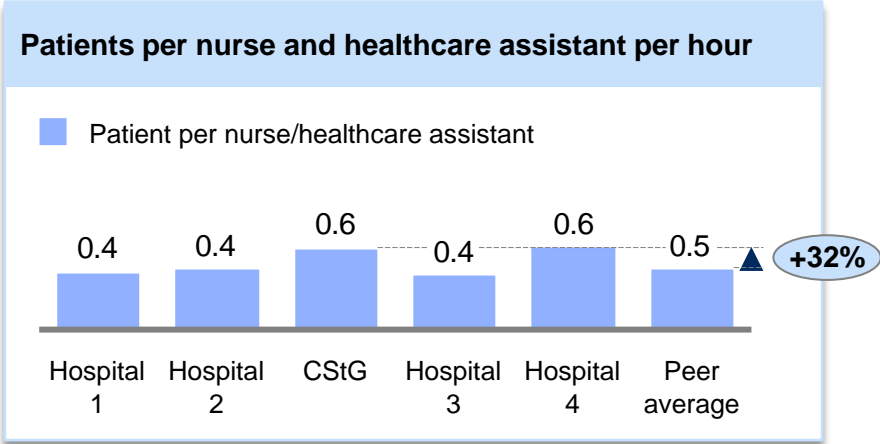
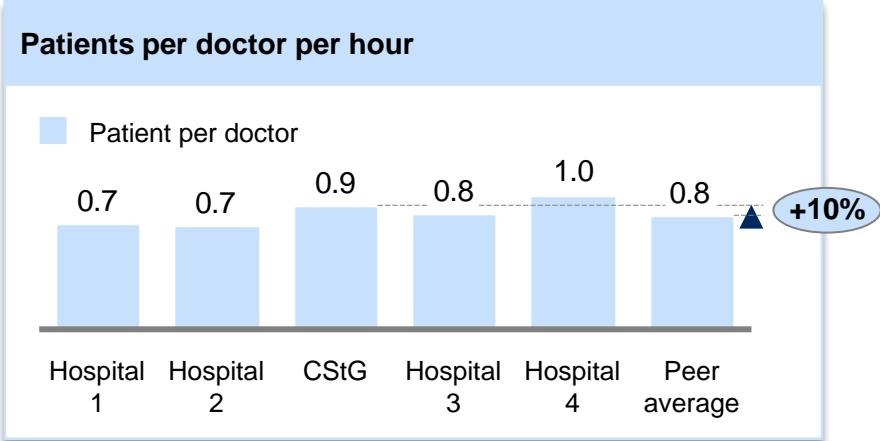
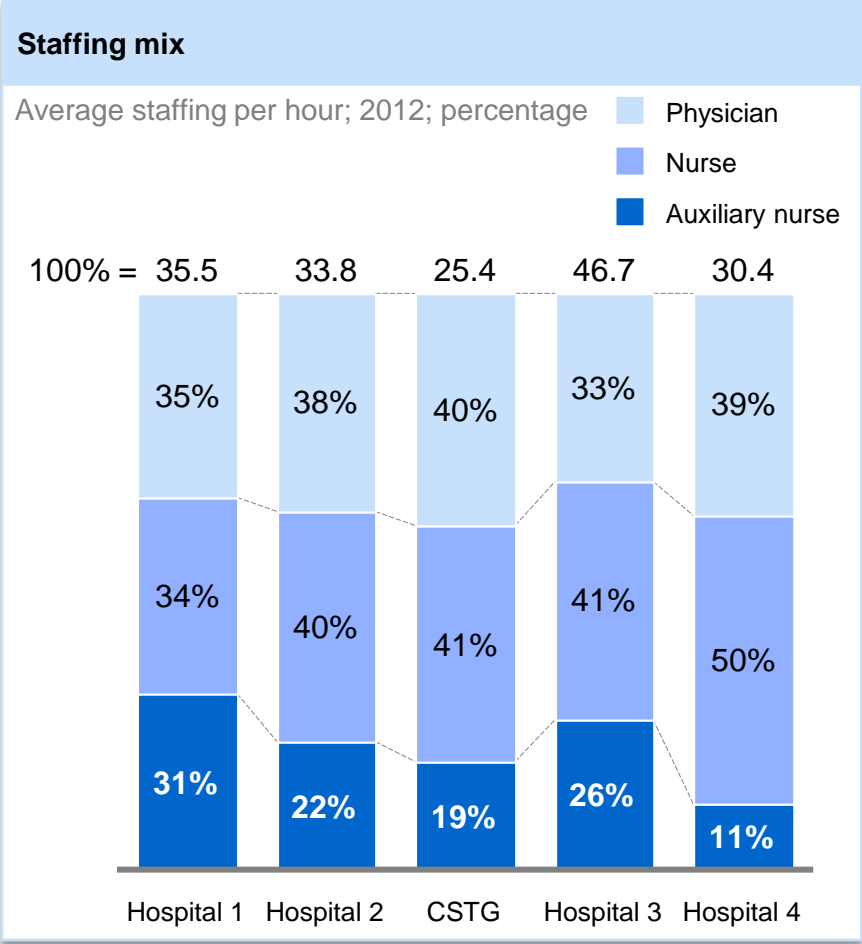
NOTE: Statistics based on benchmarking of acute hospitals with full service A&E departments in the Stockholm county region

SOURCE: Local hospital data, interviews with clinicians and staff conducted by the research team; Hospital Episode Statistics, 2013/14

Triage processes at Capio St Göran compared to other acute hospitals in the Stockholm region

- Staffing of outer triage work is performed by nurses during the daytime. This is the case for both Capio St Göran as well as the other acute hospitals in Stockholm.
- When clinically appropriate, patients may be admitted directly to the wards of the hospital without passing through the A&E department. This could include patients with a clear, established diagnosis and medical history, or typical symptoms. The main limitation to direct ward admission is bed availability. For some conditions, e.g. stroke, there are dedicated acute beds available, but this is not the case for most specialties.
- Staffing of inner triage is conducted differently for different patient groups in CStG. The desk for internal medicine patients is led by doctors while surgery and orthopaedics desks are led by nurses. This is because acute medicine patients are considered the most complex to diagnose and triage.
- After triage, the patient receives diagnostic tests, treatment and further evaluation as required. All A&E departments work with multi-disciplinary care teams. In many cases, doctors and nurses take joint responsibility for patient care and organize work in desks, flows or sections to take care of different patient groups.

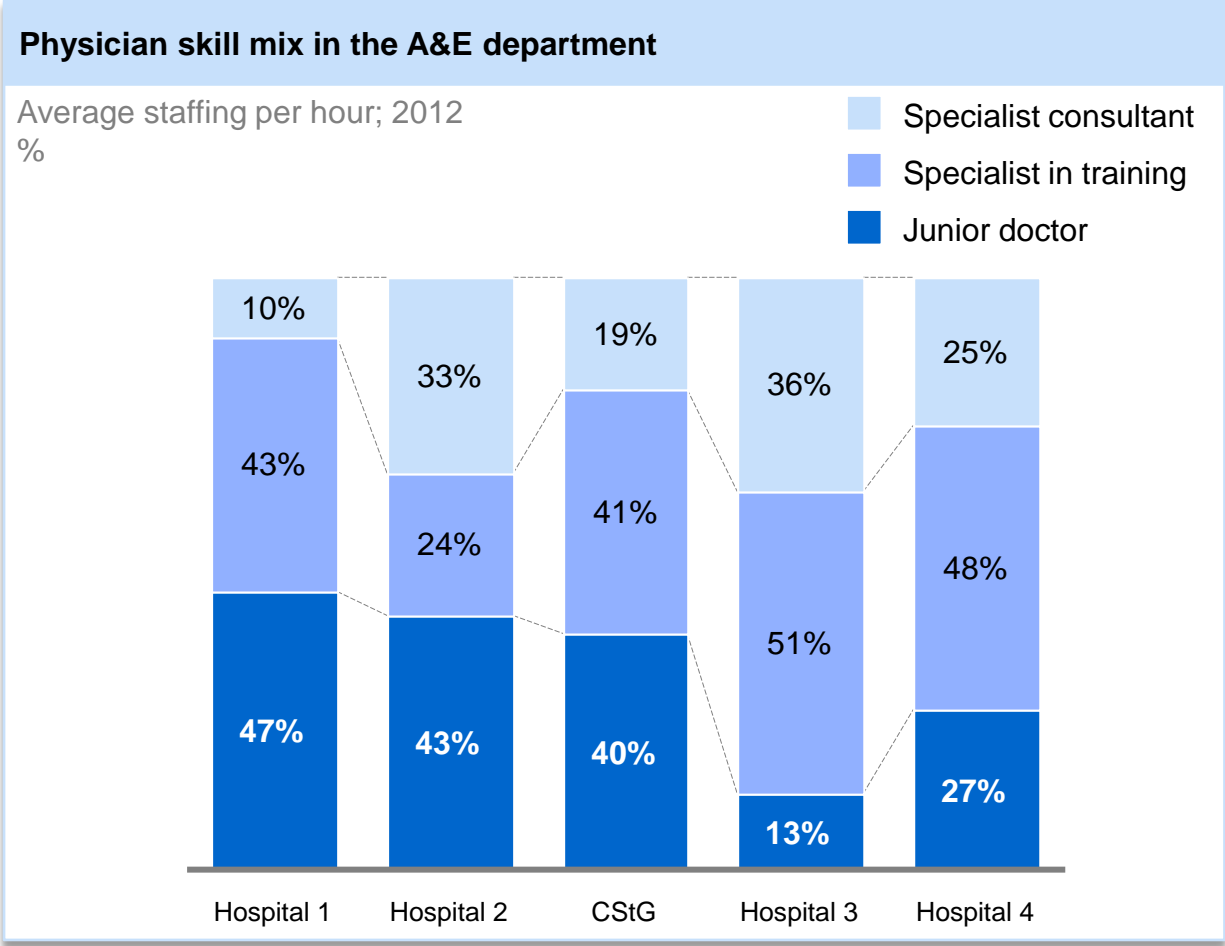
There may be a connection between staffing mix and patient throughput, with higher throughput and slightly higher physician-to-nurse ratios at Capio St Göran



Note: Staffing equivalent to an average weekday Tuesday-Friday

NOTE: Statistics based on benchmarking of acute hospitals with full service A&E departments in the Stockholm county region
 SOURCE: Local hospital data

Although Capio St Göran has a relatively high proportion of physicians within its A&E staff mix, many of these are junior doctors



Note: Staffing equivalent to an average weekday Tuesday-Friday

NOTE: Statistics based on benchmarking of acute hospitals with full service A&E departments in the Stockholm county region
SOURCE: Local hospital data

Triage staffing set-up

- **Competence mix.** The share of doctors of total clinical staff is 40% at Capho St Göran which is the highest in Stockholm (though all hospitals are between 30-40%). A&E departments with a higher share of doctors seem to be working relatively more efficiently, including CStG. These departments see more patients per worked hour, with respect to doctors and nursing staff.
- **Employment practice differs by profession.** Nurses and healthcare assistants that work for the A&E department are employed directly by the department. Doctors on the other hand are employed by either of the departments of internal medicine, orthopedics or surgery. Thereafter they regularly rotate through the A&E department, alternating between emergency and elective work.
- **Staffing after patient inflow.** All hospitals in Stockholm including CStG have staffing levels that are relatively well adapted to inflow of patients – and they are continuously working on optimizing that in response to resource constraints.
- **Physicians involved in the triage.** All A&E departments in Stockholm agree that having doctors involved in the triage contributes to keeping total treatment times down. Nurse-led triage could potentially be a bottle neck in acute medicine, when all patients need to pass through the triage that will be very resource heavy and slow.
- **Early evaluation by physician.** There seems to be a correlation between ways of working/triage system and time to be seen by a physician where team triage with a physician directly leads to patients being seen by a physician more rapidly. Surveys in Stockholm indicate that waiting times of up to one hour to be seen by a physician are considered acceptable and that an early evaluation by a physician will make the patient more accepting of the overall waiting times. Seeing a doctor early seems therefore to contribute to a better patient experience.

Capio St Göran has an acute ward with 12 beds dedicated to the A&E department

Acute wards that belong to the A&E departments at each hospital

	<u>Observation unit</u>	<u>General A&E ward</u>	<u>Specialized A&E ward</u>	<u>Total # of A&E beds</u>	<u>Total beds¹</u>
Hospital 1	No	No	No	0	455
Hospital 2	No	Yes, 2	No	36	1,212
CStG	No	Yes	No	12	291
Hospital 3	Yes	No	No	10	647
Hospital 4	No	No	Yes, medical AVA + surgical AVA	35 + 36	1,212

Inpatient beds in A&E department at Capio St Göran (AVA)
 Acute (AVA) beds are meant to be used for short term care of acute patients that should be discharged within 1-2 days. Patients would usually have a need for lower intensity care as compared to other inpatients in the hospital. The AVA is a cost effective way to treat acute patients with lower intensity needs as compared to a general ward admission. The focus on short stay patients helps to reduce length of stay.

¹ Total inpatient beds in the hospital. For hospitals 2 and 4 is it not possible to split beds between these two sites.

Capio St Görän has an efficient bed management system which removes the need for a Bed Coordinator (the typical model in Stockholm)

EXAMPLE

Example Hospital X

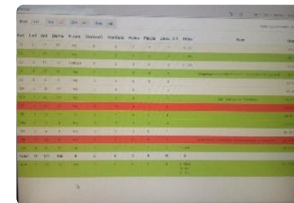


Physician contacts bed coordinator

Bed coordinator finds a bed

Nurse in chosen department contacts physician to admit the patient

Example Capio St Görän



Patient needs bed for in-patient care

Physician looks for empty bed in bed overview/Bedlog

Physician calls nurse in department with available bed and admits the patient

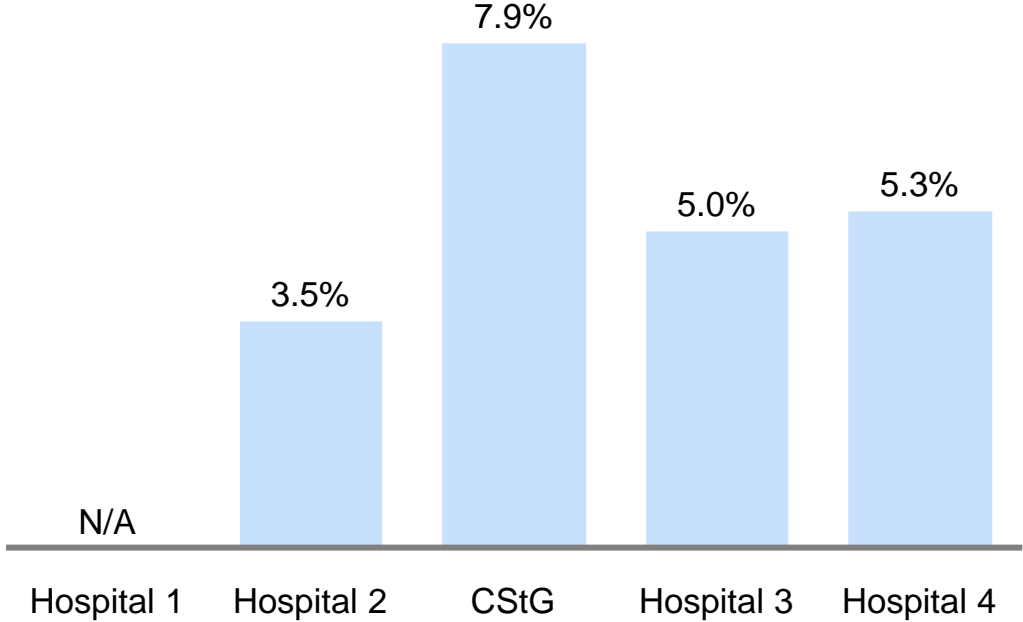
Bed coordination for inpatient admissions

Capio St Görän works with an updated digital bed management system called Bedlog, which automatically updates when a patient is admitted/discharged in the patient administrative system. Free beds are indicated with a green color, a neutral color indicates that the department is full and red that it is overfull. This system works well when there are free beds but less well when there is a deficiency of beds. **The major difference between between CStG and the other hospitals in Stockholm is not the IT tool in itself but the culture regarding how to use it.** The same functionality is available in the other systems, but staff do not engage with it fully and as a consequence the data included is not up-to-date or reliable.

Capio St Görän has the highest share of admissions directly to geriatrics hospitals from A&E

Direct admissions to geriatrics hospitals from A&E departments for patients over 65 years old that are admitted to inpatient care

Percent; 2012



Capio St Görän's A&E department has developed a good dialogue and cooperative relationship with several geriatric hospitals, whereby applicable patients for direct admission from A&E are clearly defined

There is also an active dialogue about the opposite flow, where geriatrics hospitals have the possibility of sending patients with greater need of care directly to the relevant department at CStG

The result of this cooperation is clear: CStG has the largest share of direct admissions to geriatric hospitals of all acute hospitals in Stockholm

Case mix may also explain some of the differences observed

NOTE: Statistics based on benchmarking of acute hospitals with full service A&E departments in the Stockholm county region

SOURCE: Local hospital data and VAL

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- Description – what did they do?
- **Enablers – how were they able to do this?**

Capio St Göran has been able to improve efficiency in the emergency pathway through staffing, technology and inter-provider relationships

Use of technology

- CStG uses a relatively simple bed capacity management system to admit patients. The difference between CStG and other hospitals is not the IT system itself, but the way in which it is used. Information is real-time and accurate, allowing physicians to directly admit patients and removing the need for a Bed Coordinator which can act as a bottle-neck
- Staff engage with the technology ensuring that it is up-to-date and reliable

Staff mix

- CStG has a slightly higher proportion of physicians in the overall clinical staffing in the A&E department and joint physician-nurse triage for some patient groups including acute medicine
- This may allow patients to be seen by a physician more quickly, which may enhance patient experience and support more rapid decision-making

Relationships with other parts of the health system

- CStG has established strong relationships with other providers in the local health economy – particularly geriatrics hospitals – which allows some patients to be transferred directly to the most appropriate setting
- Similarly, within the hospital, patients can be admitted directly to the appropriate ward or unit in some defined situations

Incentives

- CStG is a private hospital and has negotiated its own contract with the public payor
- Under the terms of the contract, the public payor receives a discount on the national tariff rate and the provider gets a long term contract (10 years) with the opportunity to retain profits