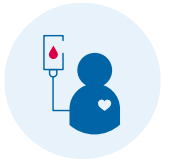


Central booking



Esbjerg Sygehus
Syddansk Universitetshospital

Central booking



Minimere Adm. Tidsforbrug

Fairness/transparens

Ventetids garanti

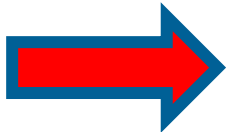
Øge patient flow

Håndtere kompleksitet

Forecast

Øge udnyttelsesgrad

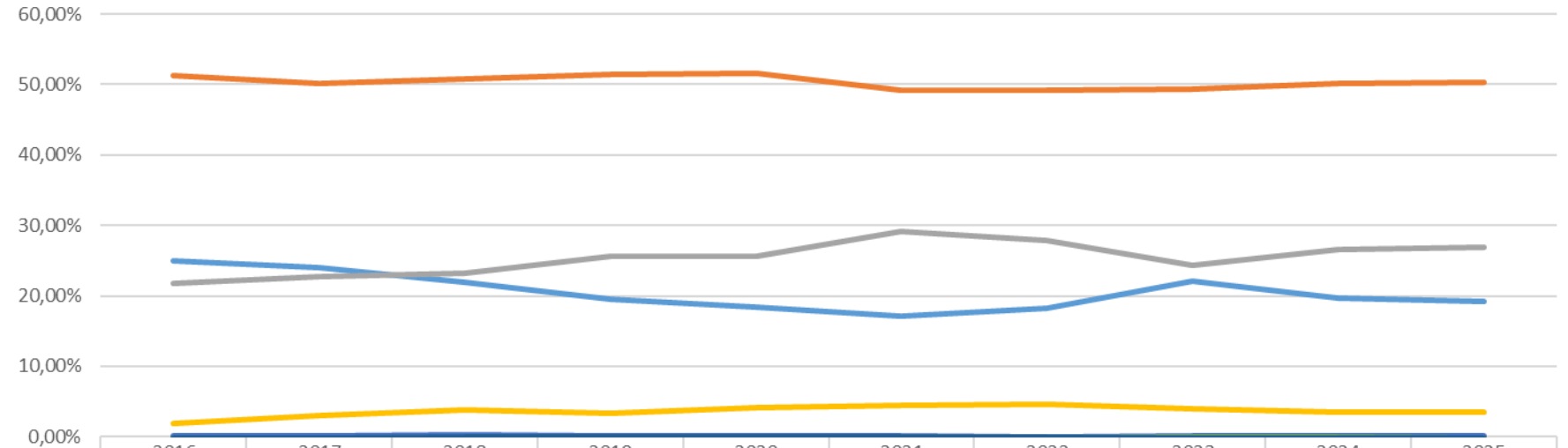
Minimere aflysninger



Andel af patienter ift ASA score

Data fra 01.10.2016-31.12.2025

ASA 3+

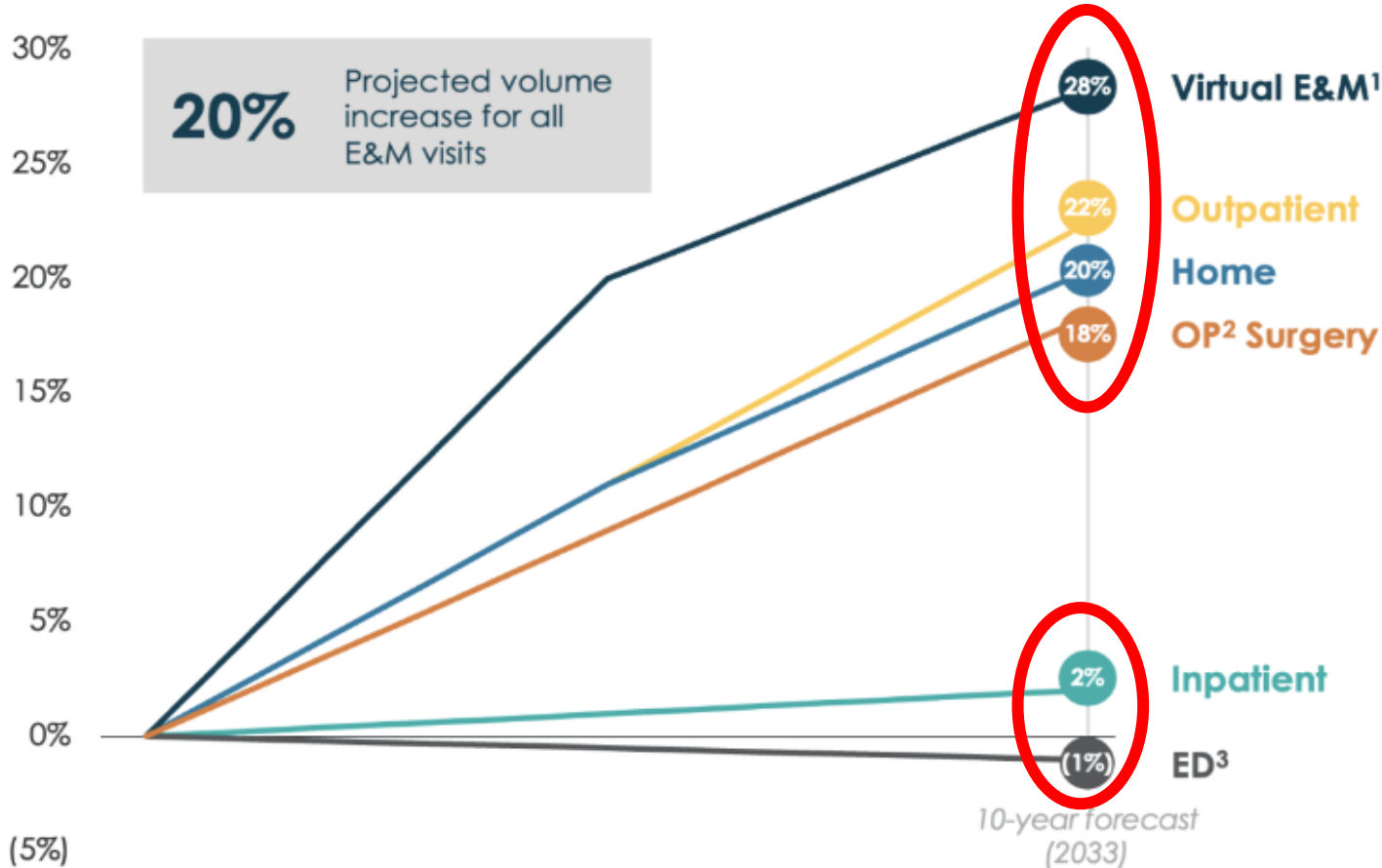


| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| ASA I : Rask | 25,00% | 24,08% | 21,89% | 19,55% | 18,48% | 17,09% | 18,30% | 22,12% | 19,69% | 19,21% |
| ASA II : Lettere systemisk sygdom | 51,28% | 50,14% | 50,85% | 51,37% | 51,66% | 49,11% | 49,16% | 49,36% | 50,16% | 50,24% |
| ASA III : Svær systemisk sygdom | 21,70% | 22,67% | 23,21% | 25,64% | 25,64% | 29,21% | 27,84% | 24,39% | 26,61% | 26,91% |
| ASA IV : Livstruende svær systemisk sygdom | 1,91% | 3,00% | 3,79% | 3,33% | 4,07% | 4,37% | 4,66% | 4,05% | 3,44% | 3,54% |
| ASA V : Døende patient som ikke forventes at overleve uden operation | 0,11% | 0,11% | 0,24% | 0,09% | 0,13% | 0,19% | 0,03% | 0,07% | 0,09% | 0,09% |
| ASA VI : Hjermedød organgdonor | 0,00% | 0,00% | 0,00% | 0,00% | 0,00% | 0,00% | 0,00% | 0,01% | 0,01% | 0,00% |
| Ukendt | 0,00% | 0,00% | 0,02% | 0,01% | 0,01% | 0,03% | 0,01% | 0,00% | 0,00% | 0,00% |

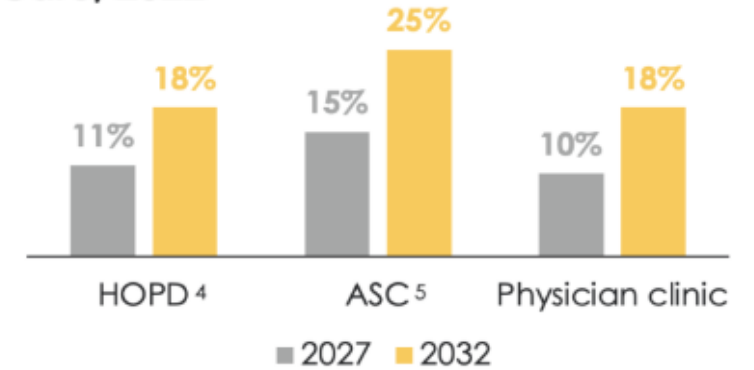
Forecast: Virtual, Outpatient and Home Projected to be Fastest Growing Sites of Care Over Next Decade

Outpatient Services Projection Fueled Predominately by ASC Growth

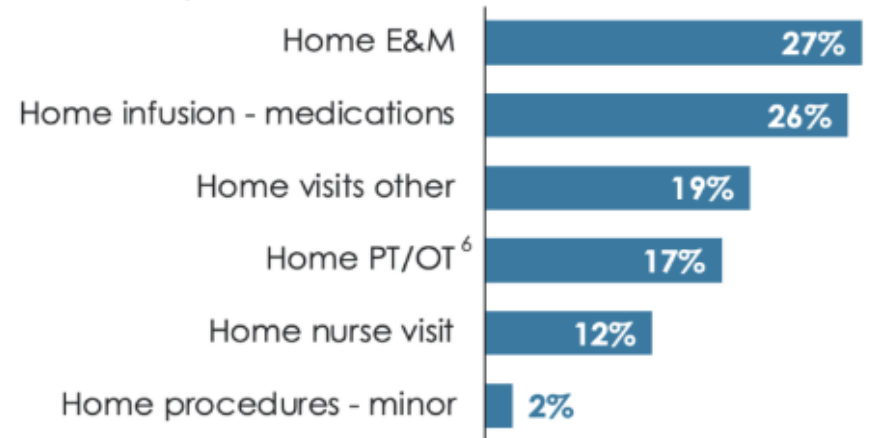
Percentage Change in Adult Healthcare Volumes Forecast, 2023



Projected Volumes Growth for Outpatient Care, 2022



Ten-Year Forecast for Growth of Home Services, 2023



1. Evaluation and management.
2. Outpatient.
3. Emergency department.

4. Hospital outpatient department.
5. Ambulatory surgery center.
6. Physical therapy/ occupational therapy.

Source: "2023 Impact of Change® Forecast Report". Sg2 Healthcare Intelligence. June 2023; "2022 Impact of Change® Forecast Report". Sg2 Healthcare Intelligence. 7 June 2022; Gist Healthcare analysis.



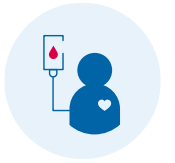
Ønske om transparens/datadrevne beslutninger

**DATA-DRIVEN DECISION MAKING
IS IMPORTANT TO MY BUSINESS**



**WE ARE USING DATA TO MAKE
DECISIONS IN OUR BUSINESS**





- BookPlan
- Patienter bookes centralt til operation efter først-til-mølle princippet og ud fra Beregnede middeltider/indgreb/kirurg (den forventede tid) for operationen.
- Patienter bookes til prædefinerede blokke af tid af en bestemt varighed.

Organisatorisk :High performance OP team forudsætninger

- **Relationel koordinering**
- **Psykologisk tryghed**
- **Klarhed over formål og retning – strategisk alignment**
- **Kritisk tænkning og refleksion**
- **Åbenhed for forandringer**

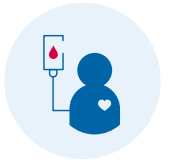


Hvad kommer i vejen?

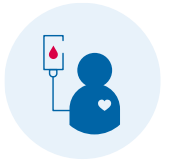
- Kort tids fokus
- Konfliktskyhed
- For stor betydning af hierarki/silo
- Mangel på klarhed af ønsket outcome (direktionen og AL er samstemte)
- Uklart mandant
- Når konsensus er målet



Central booking - tavlerum



Tavlemøder



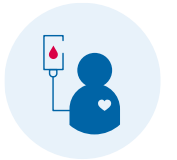
Ventetiderne er variable. Nedenstående er et øjebliksbillede.

| SPECIALE | INDGREB | Uge 45 | Uge 46 | Uge 47 | Uge 48 | Uge 49 | Uge 50 | Uge 51 | Uge 52 |
|------------------------------------|------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Ledige tider er afsat til pakkeptt | | | | | | | | | |
| GYN. | DKC TVT | 42 | 35 | 29 | 21 | | | | |
| GYN. | DKC Novasure | 10 | 23 | 16 | 10 | | | | |
| GYN. | DKC Kolp. + collumamp. | 16 | 23 | 16 | 17 | | | | |
| GYN. | DKC Almen gyn. | 2 | 7 | 8 | 6 | | | | |
| GYN. | C-OP Almen | 6 | 2 | 13 | 14 | | | | |
| GYN. | C-OP TLH | 6 | 13 | 13 | 14 | | | | |
| GYN. | C-OP TLH (robot) | 2 | 9 | 45 | 38 | | | | |

| SPECIALE | INDGREB | Uge 45 | Uge 46 | Uge 47 | Uge 48 | Uge 49 | Uge 50 | Uge 51 | Uge 52 |
|----------|---------|--------|--------|--------|--------|--------|--------|--------|--------|
| MAMMA C | DKC GA | 7 | 2 | 9 | 11 | 1 | 1 | | |

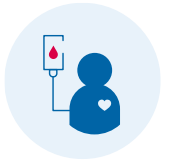
| SPECIALE | INDGREB | Uge 45 | Uge 46 | Uge 47 | Uge 48 | Uge 49 | Uge 50 | Uge 51 | Uge 52 |
|------------------|-----------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| PARENKYMKIR. COP | Gastric by-pass | 8 | 15 | 15 | 8 | | | | |
| PARENKYMKIR. COP | Tarmcancere | 6 | 2 | 6 | 7 | | | | |
| PARENKYMKIR. COP | Lap. galde | 17 | 22 | 15 | 16 | | | | |
| PARENKYMKIR. COP | ERCP i GA | 17 | 22 | 15 | 22 | | | | |
| PARENKYMKIR. COP | Hernier åben | 24 | 31 | 24 | 24 | | | | |
| PARENKYMKIR. COP | Lap. hernier | 24 | 31 | 24 | 24 | | | | |
| PARENKYMKIR. COP | Følger efter GB | 17 | 22 | 17 | 16 | | | | |
| PARENKYMKIR. COP | Skopier i GA/sedation | | | 27 | 23 | | | | |

| SPECIALE | INDGREB | Uge 45 | Uge 46 | Uge 47 | Uge 48 | Uge 49 | Uge 50 | Uge 51 | Uge 52 |
|---|------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Ventetiderne er variable. Nedenstående er et øjebliksbillede. | | | | | | | | | |
| PARENKYMKIR. DKC | Lap. galde | 17 | 10 | 8 | 8 | | | | |
| PARENKYMKIR. DKC | Børnehernier | 20 | 13 | 6 | 55 | | | | |
| PARENKYMKIR. DKC | Analopr. | 27 | 27 | 20 | 20 | | | | |
| PARENKYMKIR. DKC | Skopier i sedation 242 | 6 | 6 | | | | | | |



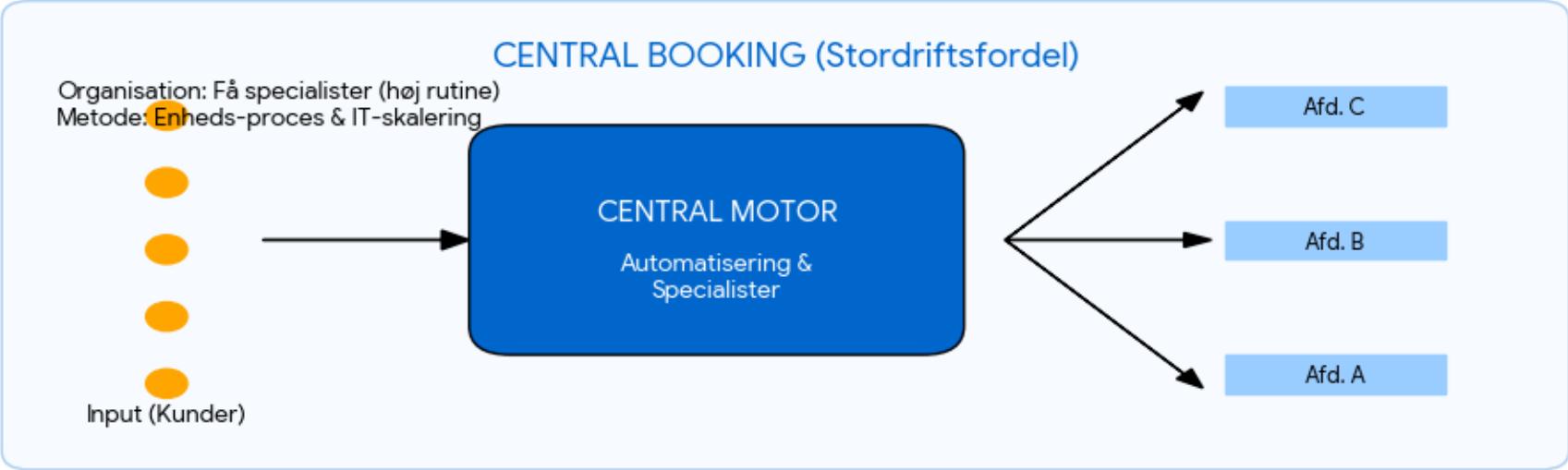
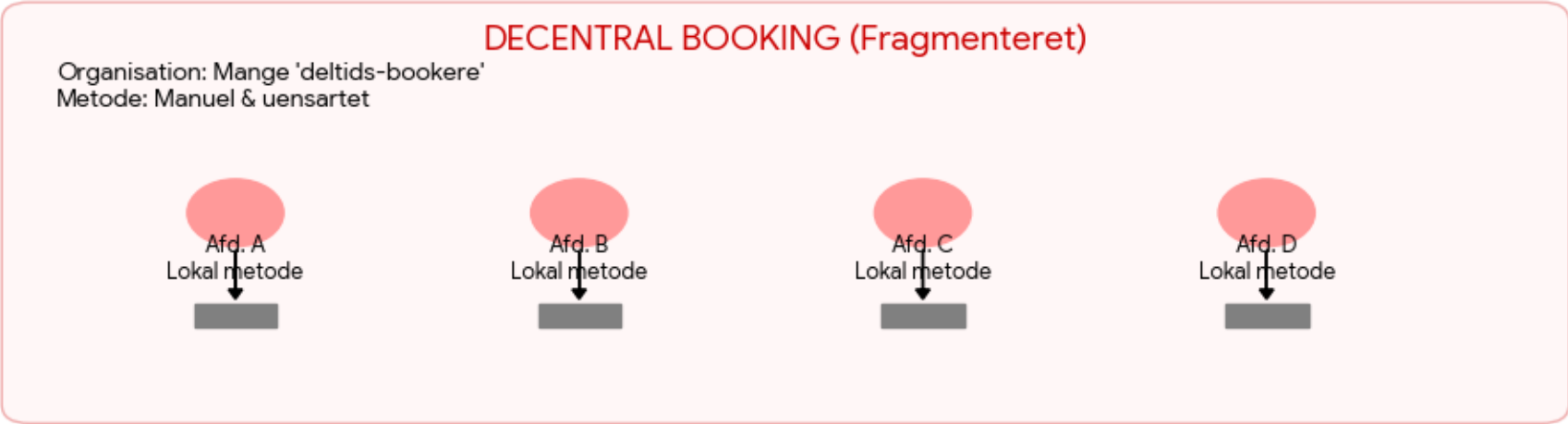
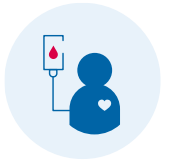
Strategisk planlægning

- Metrics (ventetid, hvor mange venter? Hvad koster de?)
- Individuel dialog mellem booking og den enkelte AL
- Tavlemøder

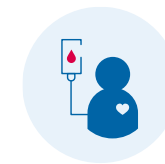


Strategisk planlægning

- OP-bestyrelsen
- Nedlukningsplan (sendes i høring fra central booking)
- Kapacitets task force



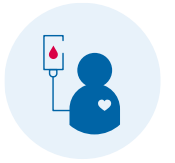
Effekter



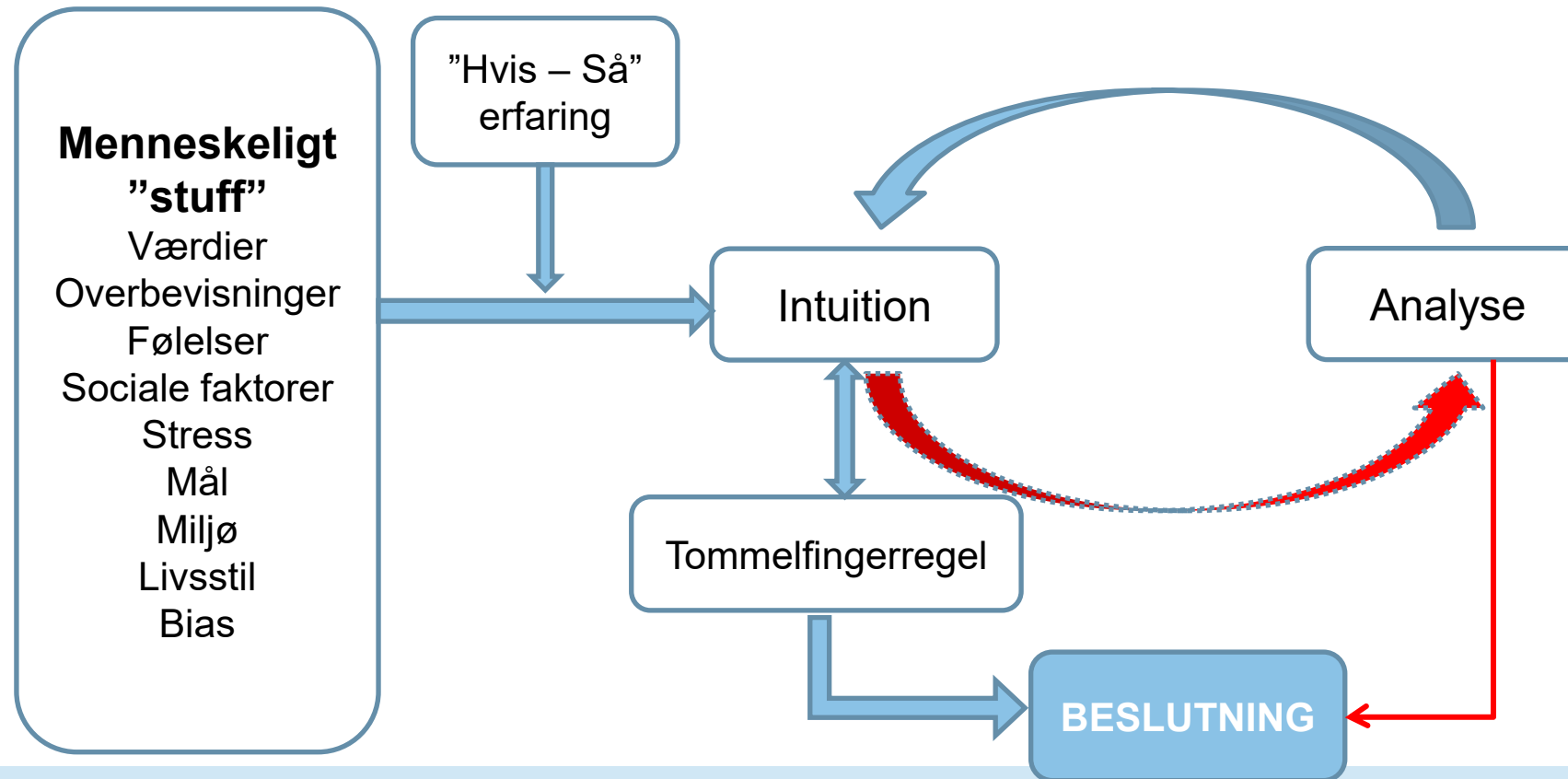
| Post | Besparelse / Gevinst | Forklaring |
|-------------|---------------------------|---|
| Lønsum | 15 - 30% | Færre hænder pga. specialisering og rutine. |
| Systemdrift | 20 - 40% | Samling af licenser og én central supportkanal. |
| Fejlrate | 50% reduktion | Standardmetoder fjerner manuelle "hovsæløsninger".(beregnete tider, standardiserede opskrifter) |
| Omsætning | +5 - 10% (7.5% i Esbjerg) | Højere belægningsgrad pga. samlet ressourcepulje. |

Fremtidig booking

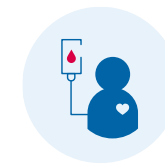




Hvordan vi træffer booking beslutninger i virkeligheden?

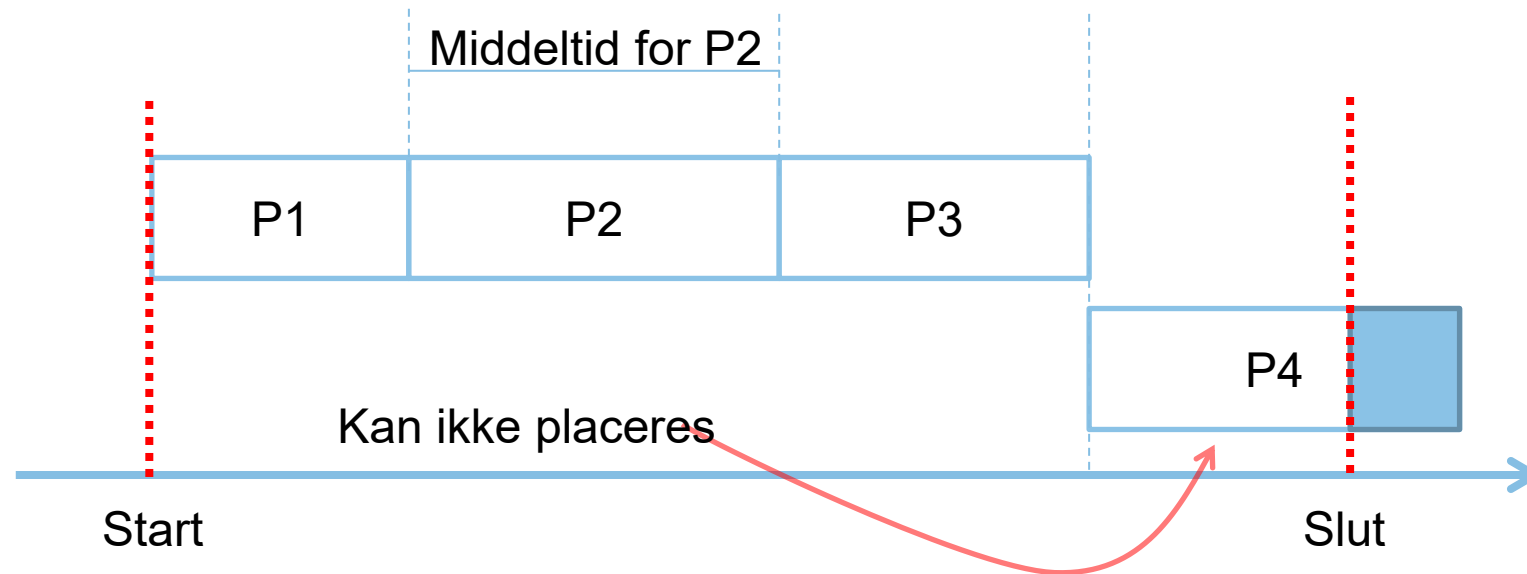
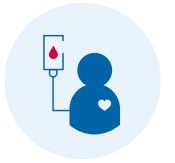


For mange valg dræner os mere end vi tror



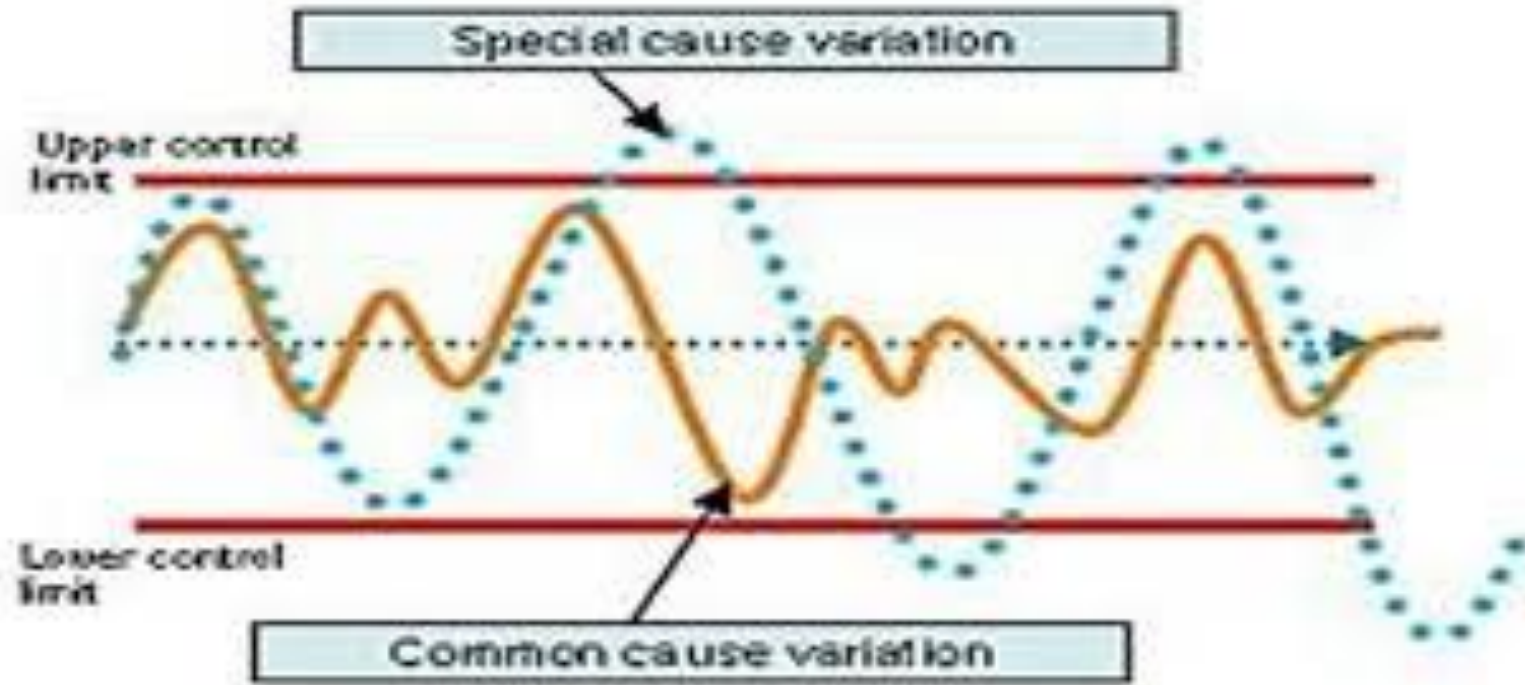
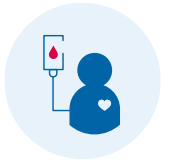
Default vælges

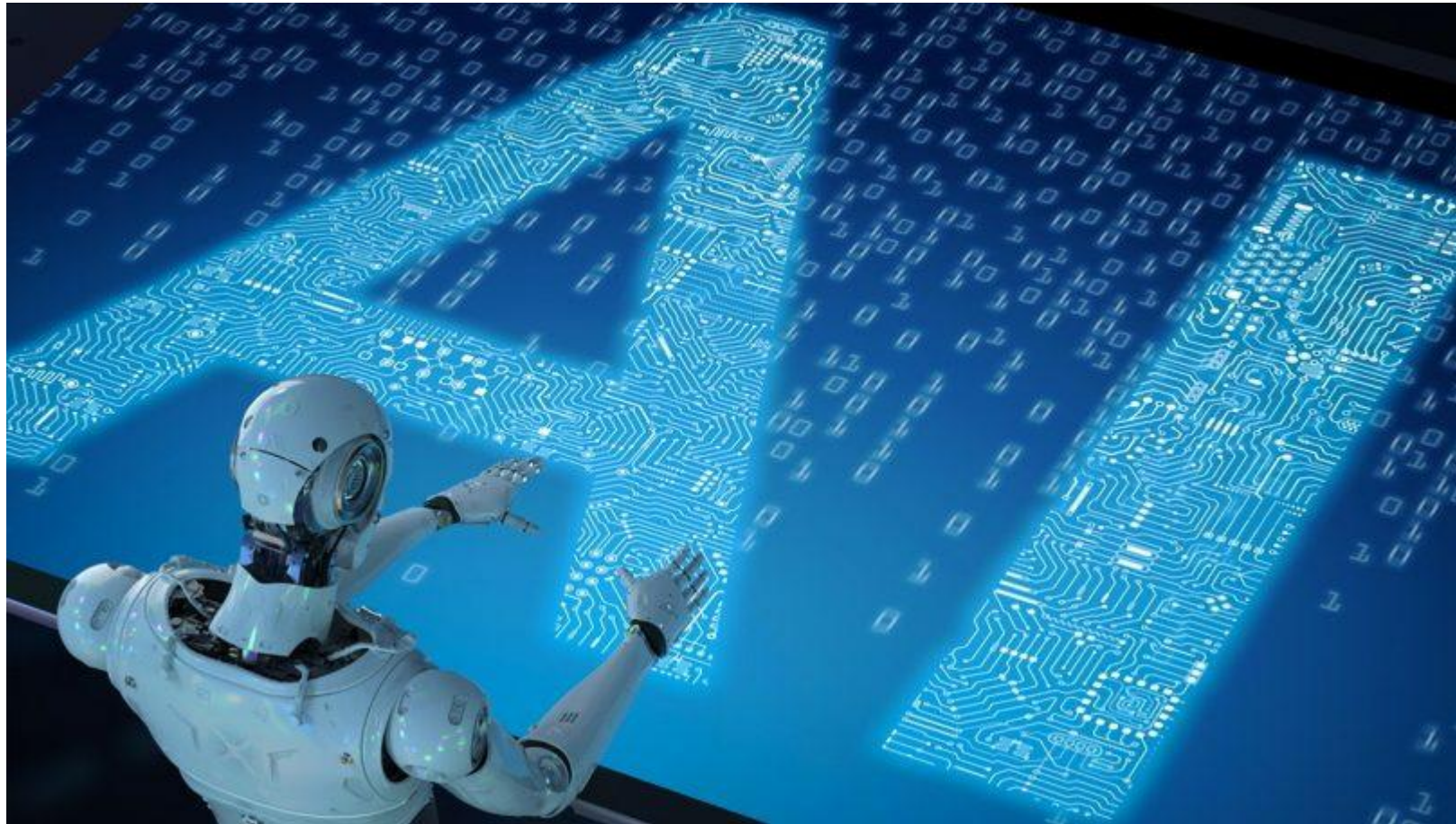
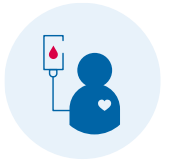
Variation vs. middeltid vs. fikseret slut tidspunkt



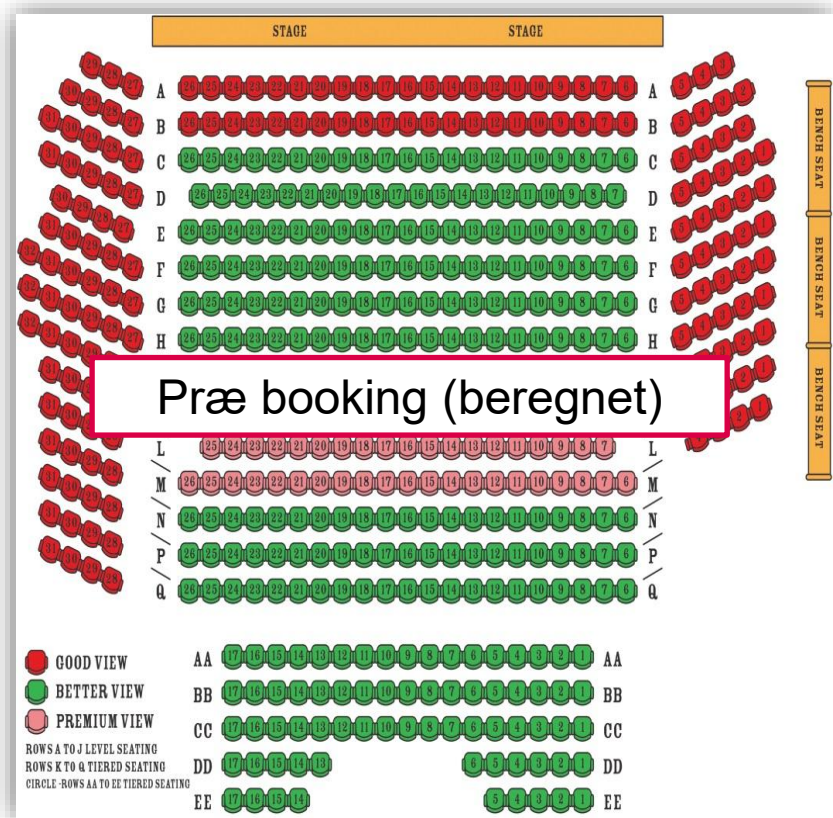
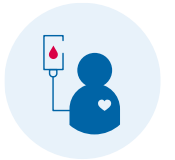
Problemer:

1. For små blokke kan give problemer at placere den sidste patient
2. At planlægge med **middeltiden** giver 50% sandsynlighed for at blive senere færdig
3. Ved først-til-mølle tildeling forværres første problem.

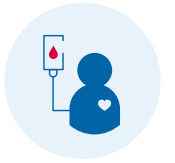




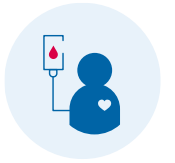
Mulige løsninger (matematisk optimering/AI)



Mulige fremtids løsninger



- Kombinationen af patient pooling og præ-booking.
- Giver bedre resultater end først-til-mølle og patient pooling eller præ-booking *enkeltvis* ("Dynamic Job Allocation: ..." Range et. al. 2016.)



Journal of Medical Systems (2024) 48:19
<https://doi.org/10.1007/s10916-024-02038-2>

REVIEW



Artificial Intelligence in Operating Room Management

Valentina Bellini¹ · Michele Russo¹ · Tania Domenichetti¹ · Matteo Panizzi¹ · Simone Allai¹ · Elena Giovanna Bignami¹

Received: 29 November 2023 / Accepted: 5 February 2024 / Published online: 14 February 2024
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Data udfordringer

“It is evident that machine learning techniques are increasingly integrated into healthcare management to address complex challenges.

The review recognizes that the adoption of machine learning in perioperative medicine is not without its challenges. Issues such as

- *data access*
- *privacy concerns*
- *need for extensive validation of AI solutions. “*





Open Access Review Article

Natural Language Processing (NLP)- and Machine Learning (ML)-Enabled Operating Room Optimization: A Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Systematic Review Anchored in Project Planning Theory

Review began 04/15/2025

Review ended 04/20/2025

Published 04/22/2025

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Balaiah Chamarthi ¹, Omkar Reddy Polu ², Sathish Krishna Anumula ³, Azhar Ushmani ⁴, Pratik Kasralikar ⁵, Abdul Aleem Syed ⁶

1. Technology and Innovation, Info Services LLC, Livonia, USA 2. Technology and Innovation, City National Bank, Los Angeles, USA 3. Research and Development, IBM Corporation, Detroit, USA 4. Information Security, Amazon Web Services (AWS), Dallas, USA 5. Business Administration, Lindsey Wilson College, Columbia, USA 6. Technical Product Management, First Horizon Financial (FHN), Katy, USA

Corresponding author: Balaiah Chamarthi, cbala5006@gmail.com

Overlegen metode til kapacitets udnyttelse/forecast

“Conclusions

consistently demonstrated the superiority of data-driven approaches over conventional methods in forecasting surgical durations, streamlining perioperative logistics, and enhancing the predictability of postoperative care demands. “

