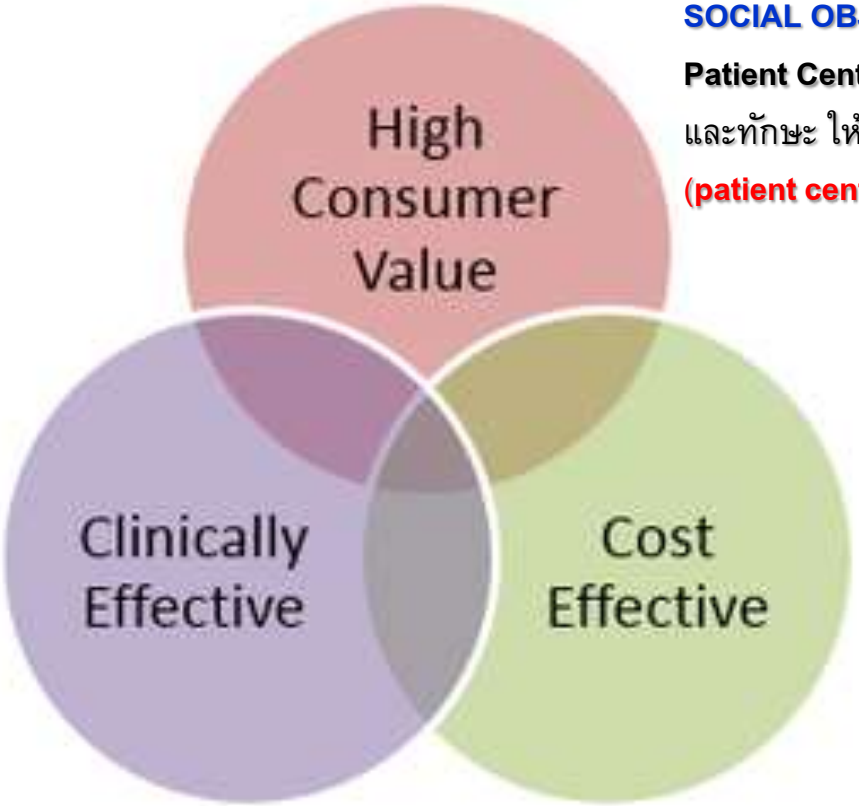
Driver Diagram
แผนภูมิปัจจัยขับเคลื่อน

ชเนนทร์ วนาภิรักษ์ พ.บ.
คณะแพทยศาสตร์ มหาวิทยาลัยเชียงใหม่
สถาบันรับรองคุณภาพสถานพยาบาล (องค์การมหาชน)

High Value Healthcare



SOCIAL OBJECTIVES

Patient Centered: เข้าถึงง่าย บุคลากรสื่อสารดี มีความรู้และทักษะ ให้เวลาที่จะตอบสนองความต้องการของผู้ป่วย (**patient centeredness**, accessibility, timeliness)

CLINICAL OBJECTIVES

Clinically Effective: ก่อให้เกิดผลลัพธ์ทางคลินิกที่มีความสำคัญต่อผู้ป่วย ต่อชุมชน และต่อผู้จ่ายเงิน (**effectiveness**, appropriateness, safety)

ECONOMIC OBJECTIVES

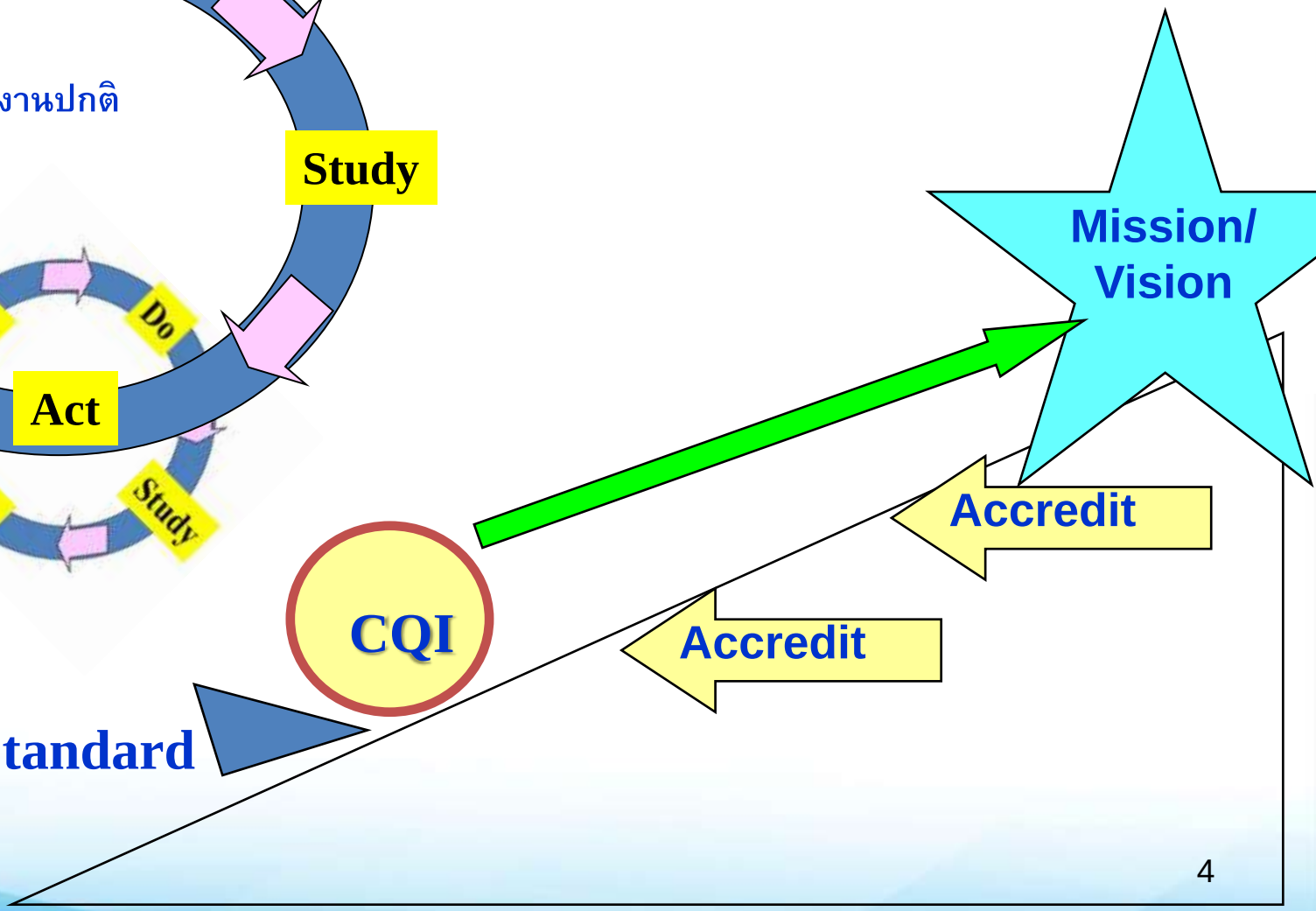
Cost Effective: คุ้มค่ากว่าเมื่อเทียบกับทางเลือกอื่น เพราะขจัดความสูญเปล่าออกจากกระบวนการทำงาน (**efficiency**)

สถาบันรับรองคุณภาพสถานพยาบาล (องค์การมหาชน)
The Healthcare Accreditation Institute (Public Organization)

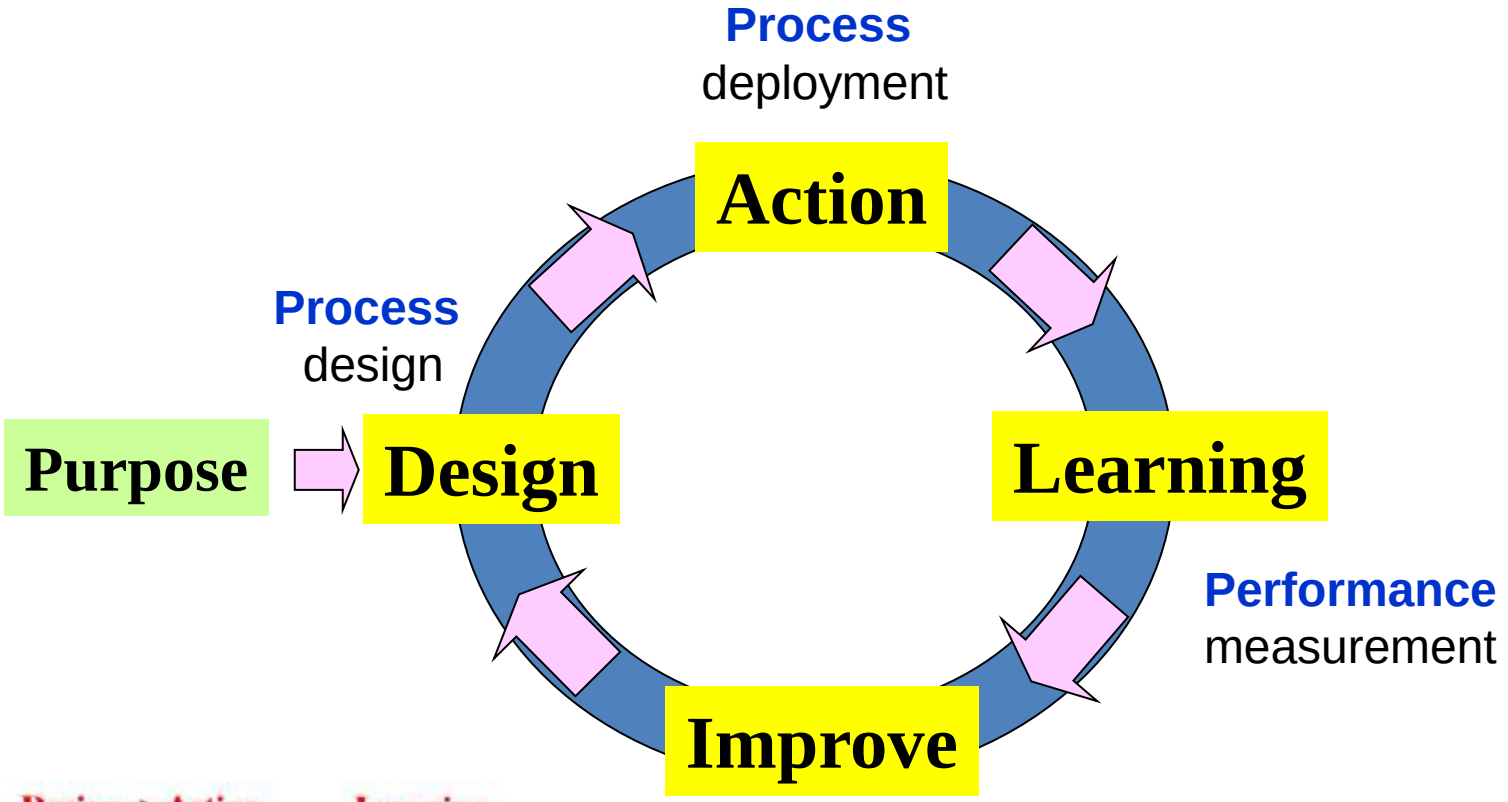
Continuous Quality Improvement (CQI)

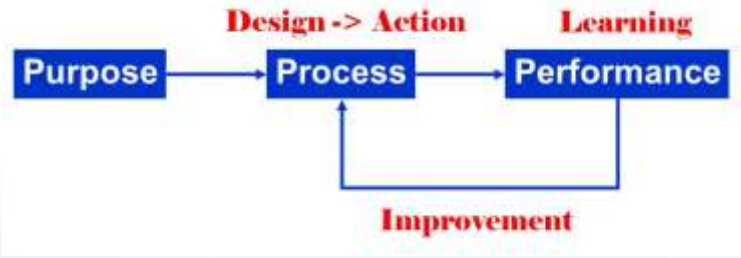
คุณภาพเริ่มจากพื้นฐาน PDSA

กิจกรรม
พัฒนาคุณภาพ

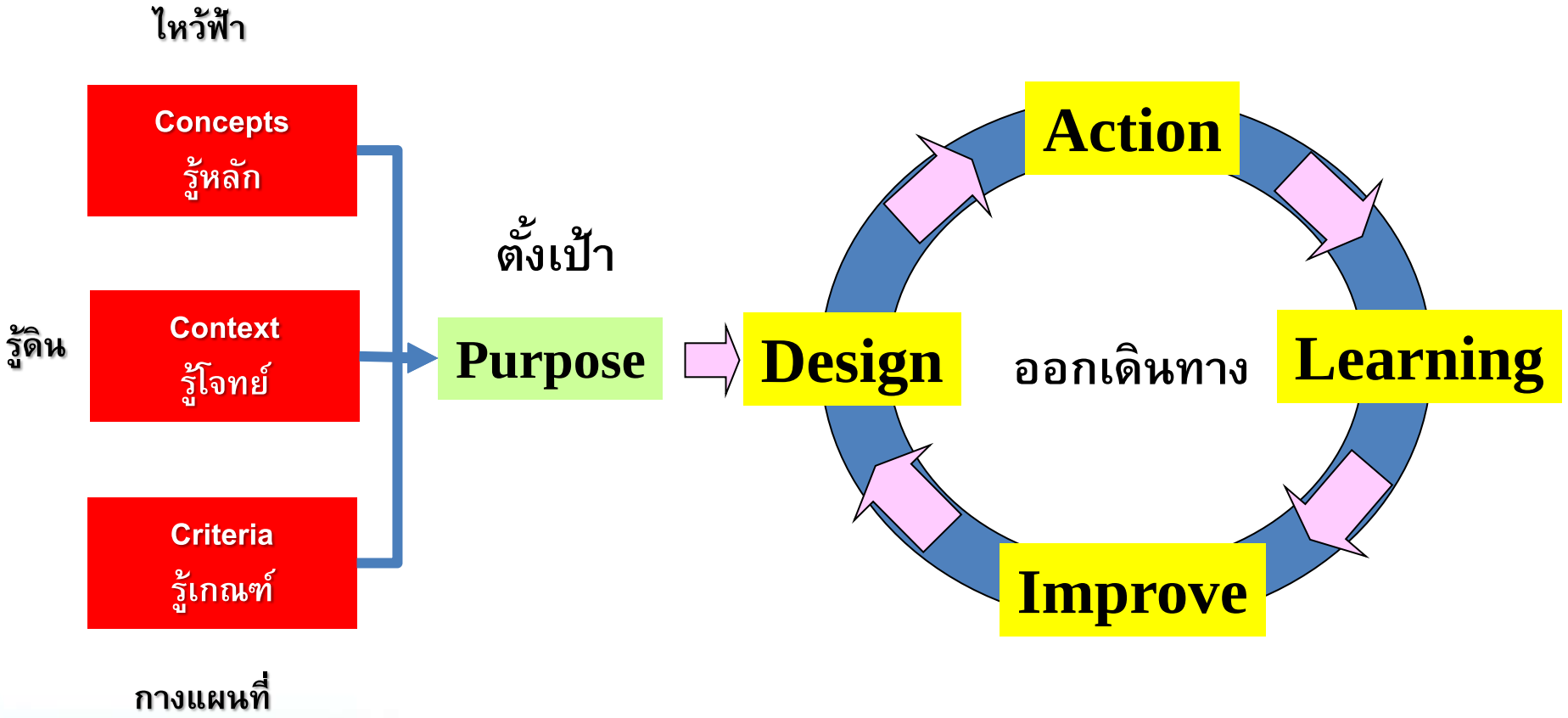


สรุปย่อให้ง่ายขึ้นเป็น 3P





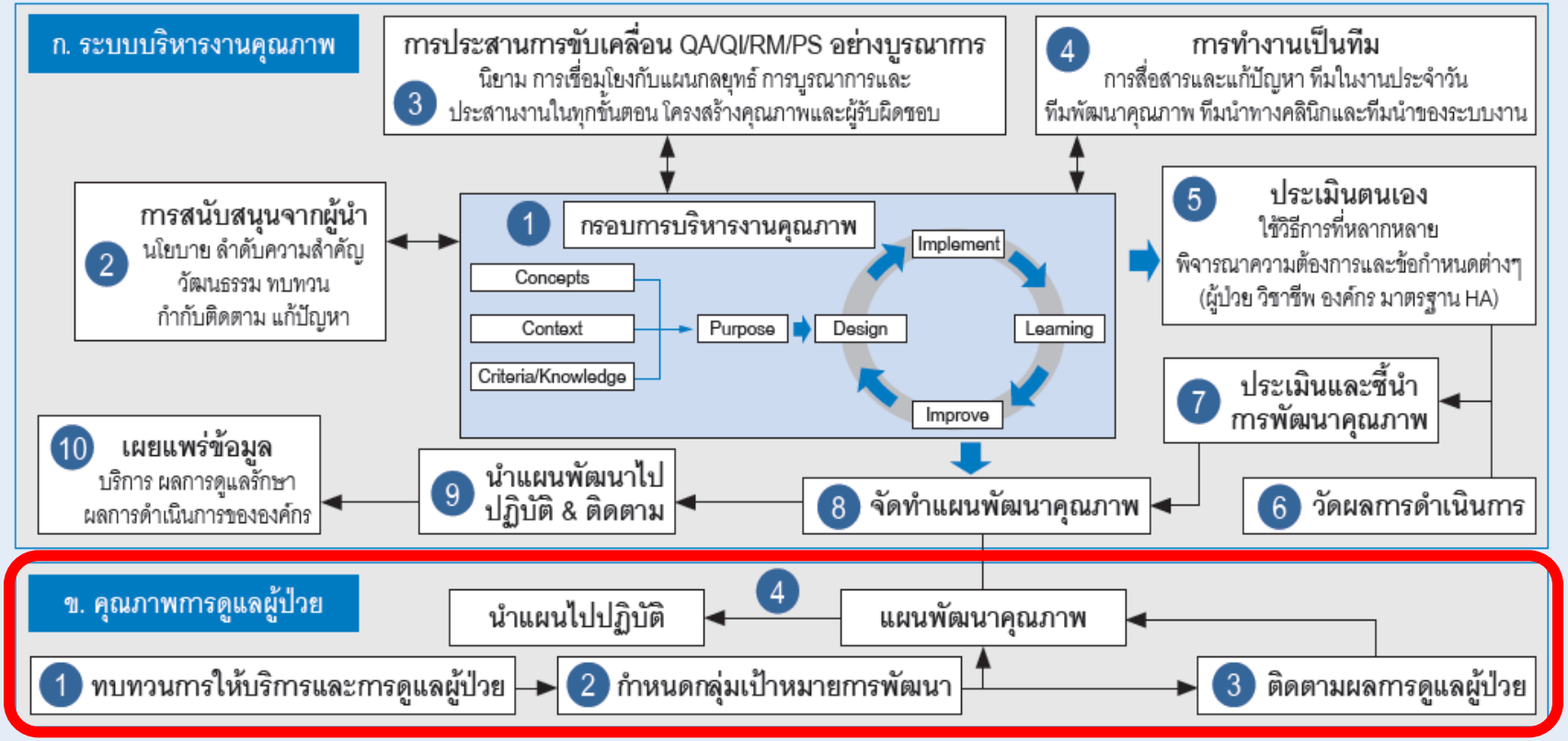
3C- PDSA/DALI
ไหว้ฟ้า รู้ดิน ตั้งเป้า กางแผนที่ ออกเดินทาง



II-1 การบริหารความเสี่ยง ความปลอดภัย และคุณภาพ (RSQ)

II-1.1 การบริหารงานคุณภาพ (Quality Management)

มีการบริหารงานคุณภาพ ที่ประสานสอดคล้องกันในทุกระดับ.

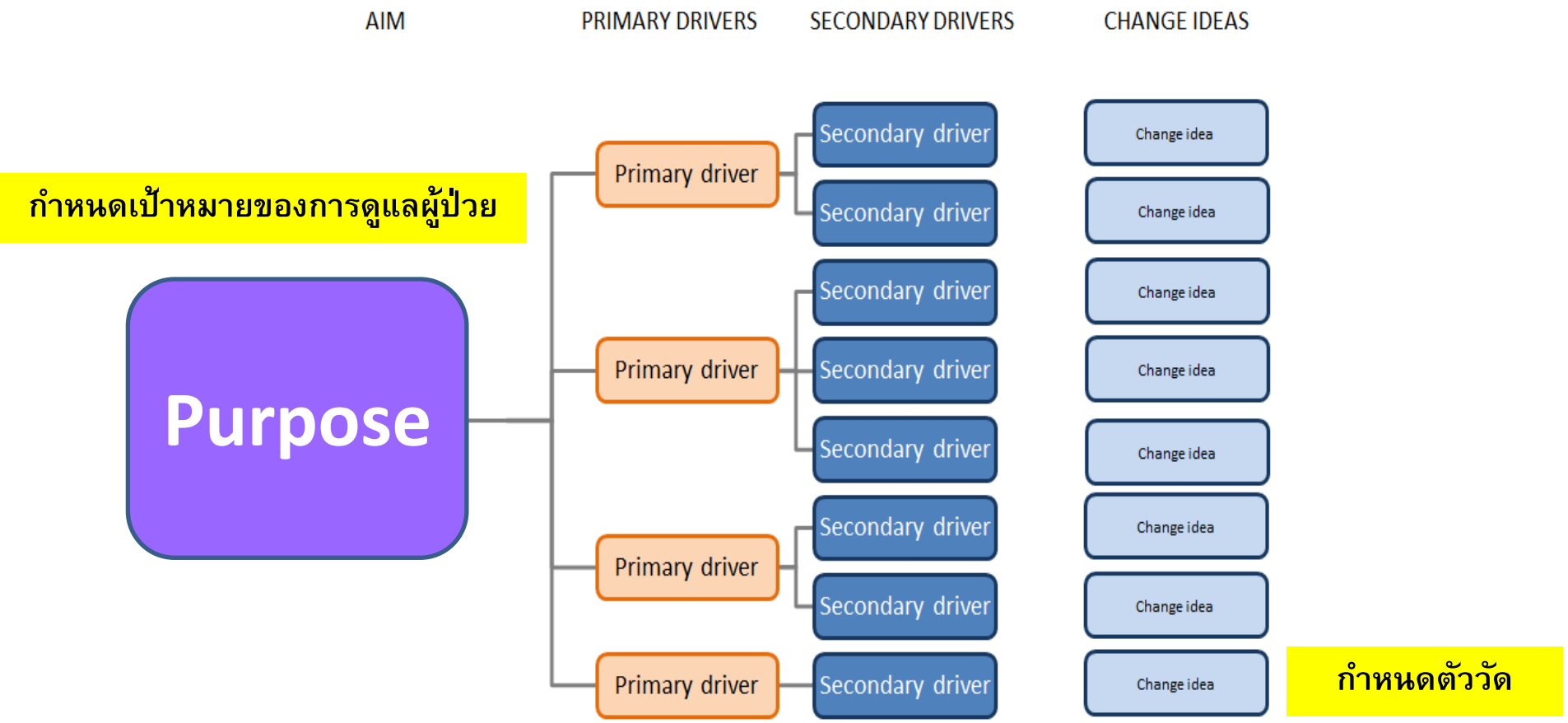


Clinical Tracer / Clinical Quality Summary
ใช้ 3P เพื่อขับเคลื่อนและรายงานคุณภาพ

- **Purpose** แสดงเป้าหมายการดูแลผู้ป่วยที่ชัดเจนพร้อมปัจจัยขับเคลื่อน(Driver)
- **Process** แสดงคุณภาพในทุกขั้นตอนการดูแลผู้ป่วยตั้งแต่เริ่มต้นจนสิ้นสุด
  - Map key patient care processes
  - Identify process requirement เสริมด้วยการทบทวน NEWS
    - Patient's Need, Evidence, Waste, Safety
  - Process design
- **Performance** แสดงระดับและแนวโน้มของผลลัพธ์ที่สำคัญ (ตามเป้าหมาย)
  - Measurement
    - Run chart or control chart with annotation
    - Benchmarking (if possible)
  - Improvement

Propose & Drivers ตั้งเป้าและวิเคราะห์ปัจจัยขับเคลื่อน

วิเคราะห์ปัจจัยขับเคลื่อนและ intervention



กำหนดเป้าหมายของการดูแลผู้ป่วย

กำหนดตัววัด

ประยุกต์ใช้ Process Management

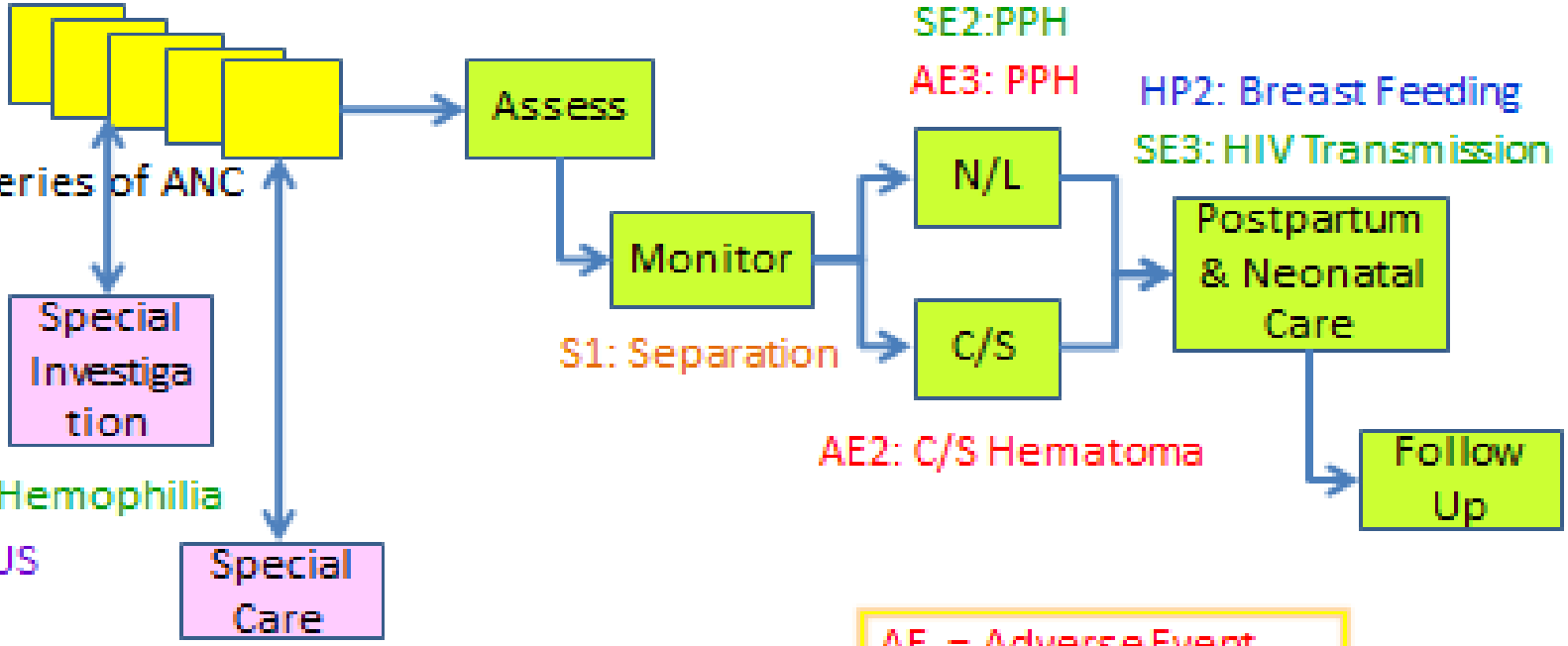
- **Zoom Out:** คลี่ **Flow** ของกระบวนการตั้งแต่ต้นจนจบ

- **Zoom In:**
  - ระบุ **Process Requirement** ของแต่ละขั้นตอน
  - **Process Design** ออกแบบกระบวนการเพื่อบรรลุ **Process Requirement**
  - **Process Indicator** กำหนดตัวชี้วัดของกระบวนการ (ถ้าเป็นประโยชน์ในการทำงาน)

R1: Teenage Pregnancy

W1: ANC Queuing

HP1: Fetal Movement Monitor



AE = Adverse Event
W = Waiting
SE = Scientific Evidence
S = Spirituality
HP = Health Promotion
R = Research

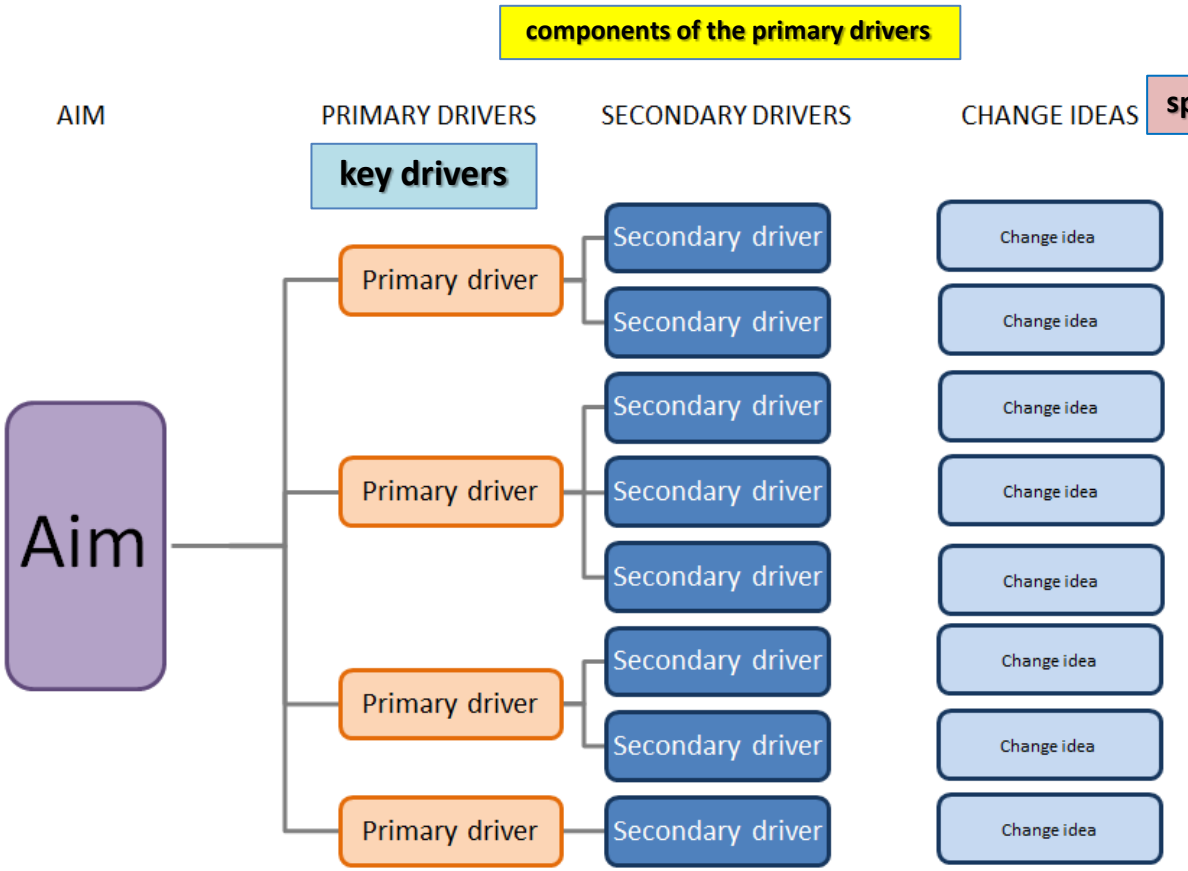
Process Management

Process	Process Requirement	Measure	Process Design

การระบุ **process requirement** (สิ่งที่คาดหวังจากกระบวนการ) ที่ชัดเจน
ทำให้มีหลักในการออกแบบกระบวนการทำงาน
และใช้กำหนดตัววัดเพื่อให้มั่นใจว่างานส่งผลตามที่ควรจะเป็น
การวิเคราะห์ **process requirement** อาจทำได้โดยใช้ **NEWS**

Driver Diagram

WHAT: Driver diagram คือแผนภูมิที่แสดงความสัมพันธ์ของปัจจัยที่จะมีผลต่อความสำเร็จตามเป้าหมาย โดยจำแนกเป็นลำดับชั้นจากปัจจัยขับเคลื่อนไปสู่แนวคิดการปรับเปลี่ยน



Driver Diagram

WHY: Driver diagram ทำให้

- เห็นภาพรวมของแนวทางการพัฒนาที่จะเกิดขึ้น
- ช่วยตรวจสอบความสมบูรณ์ของสิ่งที่จะทำ
- ช่วยกำหนดเป้าหมายและตัววัดความก้าวหน้าในการพัฒนาในแต่ละองค์ประกอบ

HOW:

- ใช้ template ในลักษณะของ tree diagram
- ระดมสมองว่าในเรื่องนั้นอะไรเป็น driver เพื่อความสำเร็จตามเป้าหมาย แล้วจัดกลุ่ม/จำแนก เป็น primary & secondary driver (เป็นระดับหลักการ)
- ระดมสมองว่าในแต่ละ driver มีแนวคิดการปรับเปลี่ยนหรือ action อะไรบ้าง

Driver Diagram

- This clear picture of a team's shared view is a useful tool for communicating to a range of stakeholders where a team is testing and working
- เป็นเครื่องมือที่มีประโยชน์สำหรับการสื่อสารทำให้เห็นภาพชัดเจนของมุมมองร่วมของทีมไปยังงานที่ทีมงานกำลังทดสอบระบบและการทำงานอยู่

Driver Diagram

- shows relationship between **aim**(of the project), **primary or key drivers** that contribute directly to achieving the aim and **secondary drivers** that are components of the primary drivers, and **specific change ideas** to test for each secondary driver

Driver Diagram

- Primary drivers are most important influencers on the aim, and will have only a few (recommend 2 to 5)
- Secondary drivers are influencers on (or natural subsections of) primary drivers, and you may have many
- As you identify each driver, establish a way to measure it

Remember

- It’s unlikely that a single individual has a clear view of an entire complex system
- When developing a driver diagram, enlist the help of team members who are familiar with different aspects of the system under review

Instructions

1. On the left, list the project aim (what will be improved, by how much, for whom, and by when) and draw a box around it.
2. To the right of the aim, list a few “primary drivers” — the most significant high-level influencers on the aim you’ve identified. Draw a box around each of the primary drivers, and draw lines to connect the primary drivers to the aim.

Instructions

3. To the right of each primary driver, list as many “secondary drivers” that influence the primary driver as you can think of. Draw a box around each secondary driver, and draw lines to connect the secondary drivers to the primary drivers.

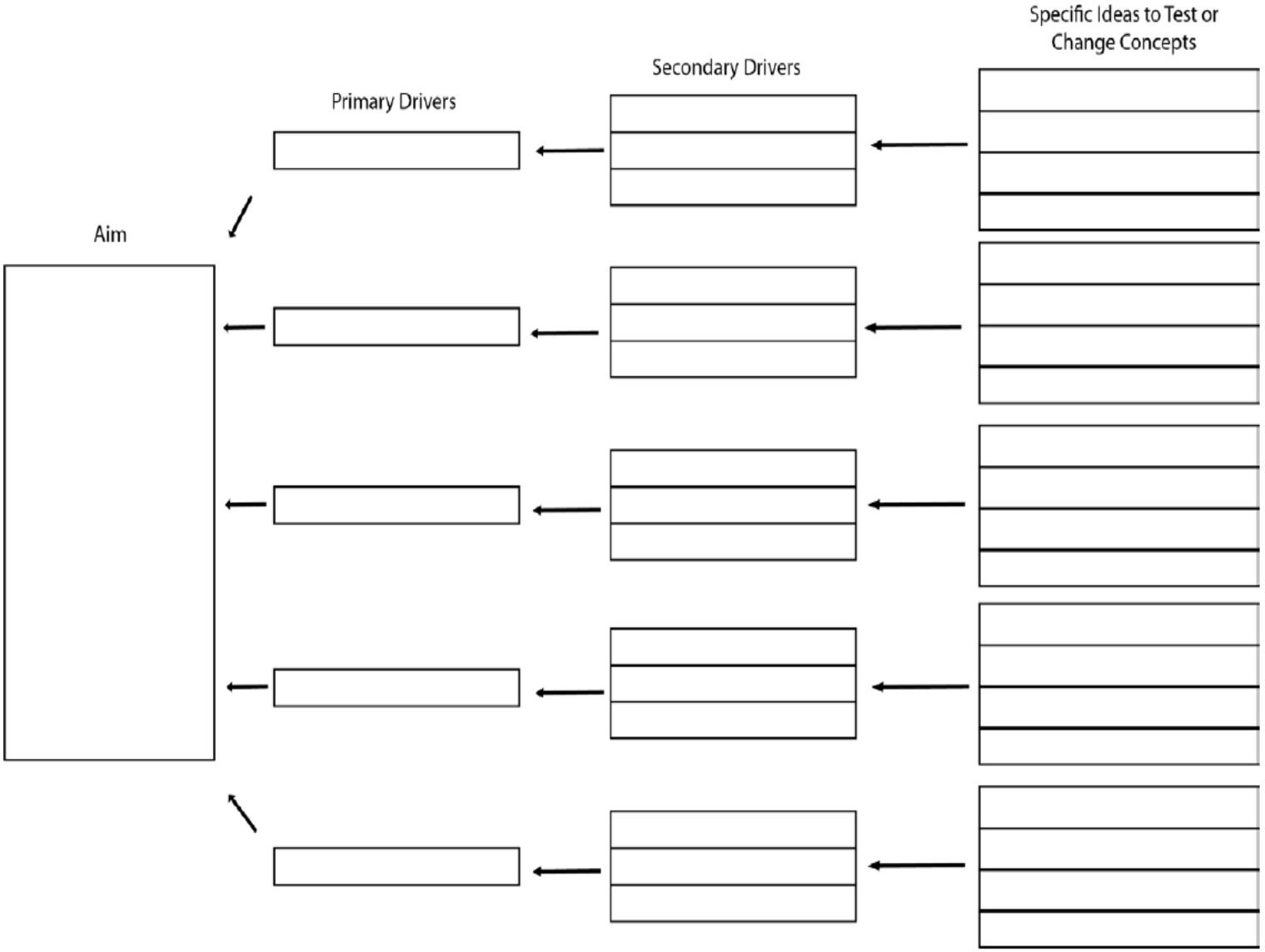
   Note: Secondary drivers can connect to more than one primary driver.

   Tip: To show strong relationships, use solid lines; to show weaker relationships, use dotted lines.

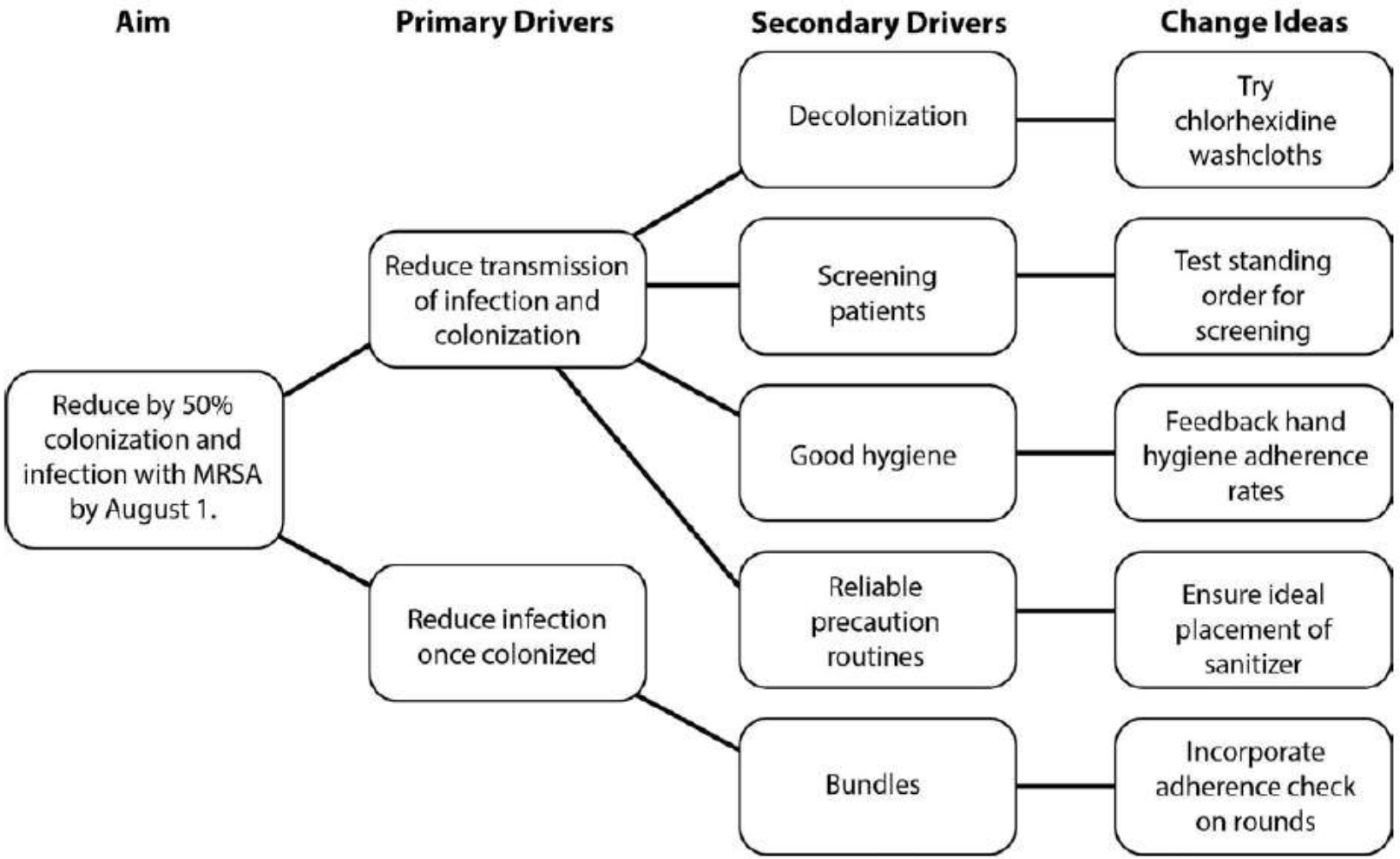
4. To the right of each secondary driver, list specific change ideas you will test to influence the secondary driver.

   Note: Change ideas can connect to more than one secondary driver.

Template

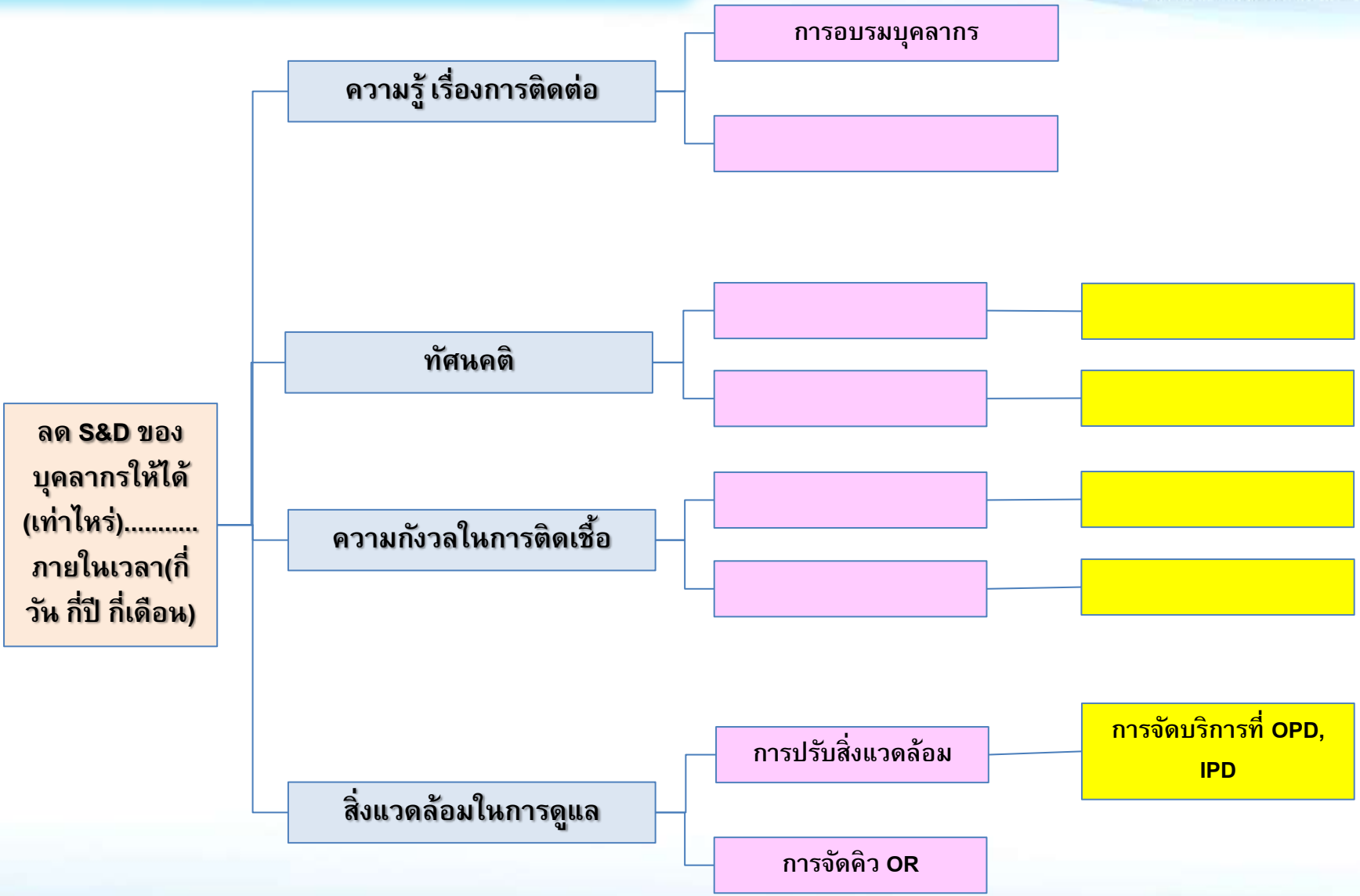

Specific Ideas to Test or Change Concepts
Secondary Drivers
Primary Drivers
Aim

example

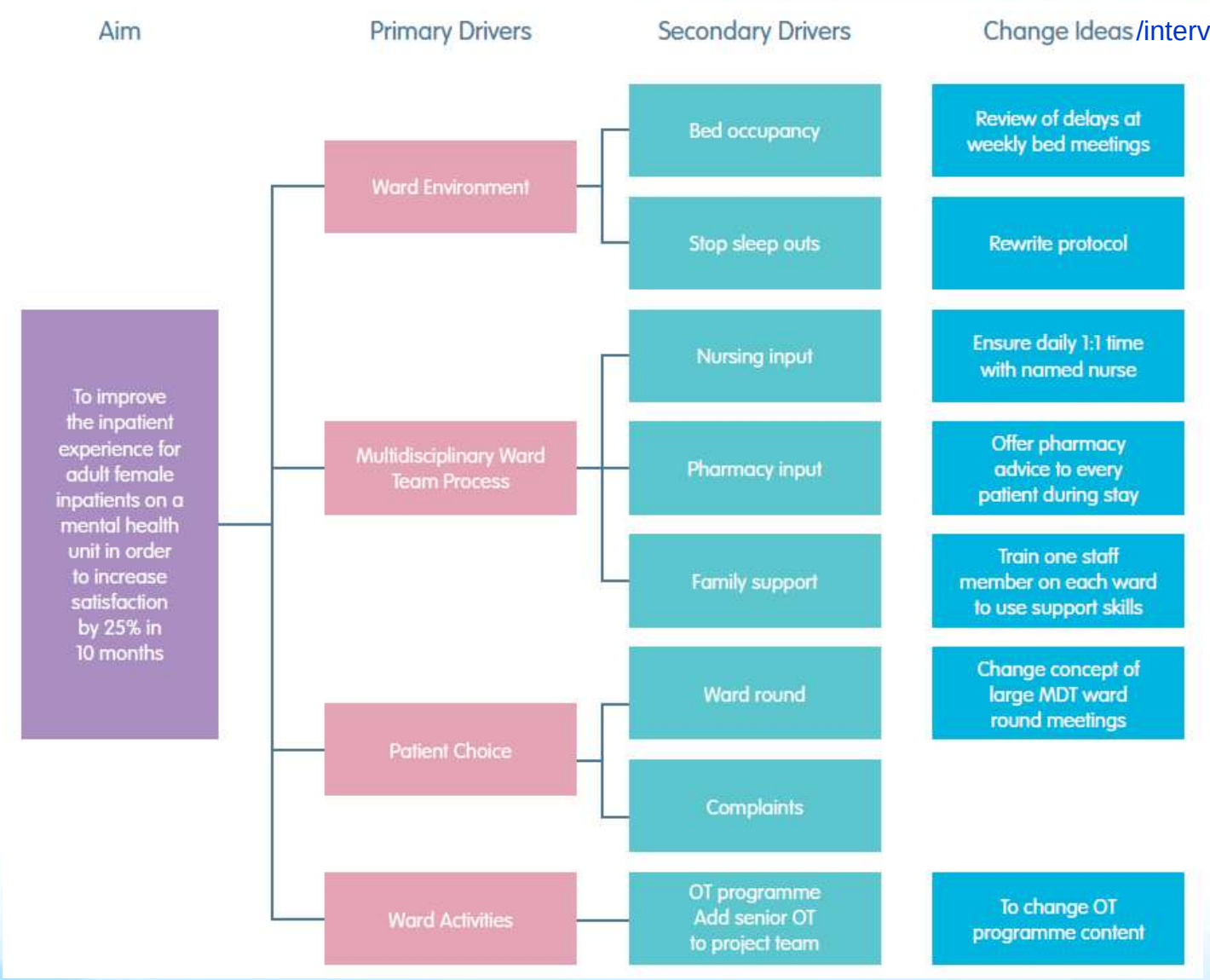

Aim
Primary Drivers
Secondary Drivers
Change Ideas
Reduce by 50% colonization and infection with MRSA by August 1.
Reduce transmission of infection and colonization
Reduce infection once colonized
Decolonization
Screening patients
Good hygiene
Reliable precaution routines
Bundles
Try chlorhexidine washcloths
Test standing order for screening
Feedback hand hygiene adherence rates
Ensure ideal placement of sanitizer
Incorporate adherence check on rounds

S&D Reduction Driver Diagram

S&D Reduction Driver Diagram



ตัวอย่าง Driver Diagram



Antibiotic Stewardship Driver Diagram

INSTITUTE FOR HEALTHCARE IMPROVEMENT

Timely and appropriate antibiotic utilization in the acute care setting

Decreased incidence of antibiotic-related adverse drug events (ADEs)

Decreased prevalence of antibiotic resistant healthcare-associated pathogens

Decreased incidence of healthcare-associated *C. difficile* infection

Decreased pharmacy cost for antibiotics

Primary Drivers

Timely and appropriate initiation of antibiotics

Appropriate administration and de-escalation

Data monitoring, transparency, and stewardship infrastructure

Availability of expertise at the point of care

Secondary Drivers

- Promptly identify patients who require antibiotics
- Obtain cultures prior to starting antibiotics
- Do not give antibiotics with overlapping activity or combinations not supported by evidence or guidelines
- Determine and verify antibiotic allergies and tailor therapy accordingly
- Consider local antibiotic susceptibility patterns in selecting therapy
- Start treatment promptly
- Specify expected duration of therapy based on evidence and national and hospital guidelines

- Make antibiotics patient is receiving and start dates visible at point of care
- Give antibiotics at the right dose and interval
- Stop or de-escalate therapy promptly based on the culture and sensitivity results
- Reconcile and adjust antibiotics at all transitions and changes in patient's condition
- Monitor for toxicity reliably and adjust agent and dose promptly

- Monitor, feedback, and make visible data regarding antibiotic utilization, antibiotic resistance, ADEs, *C. difficile*, cost, and adherence to the organization's recommended culturing and prescribing practices

- Develop and make available expertise in antibiotic use
- Ensure expertise is available at the point of care

Practice Key Driver Diagram

GLOBAL CQN AIM
We will build a sustainable quality improvement infrastructure within our practice to achieve measurable improvements in ADHD care processes.

Specific Aim
From January 2016 to November 2016, we will achieve measurable improvements in ADHD care processes by implementing key strategies from the AAP guidelines and making key practice changes.

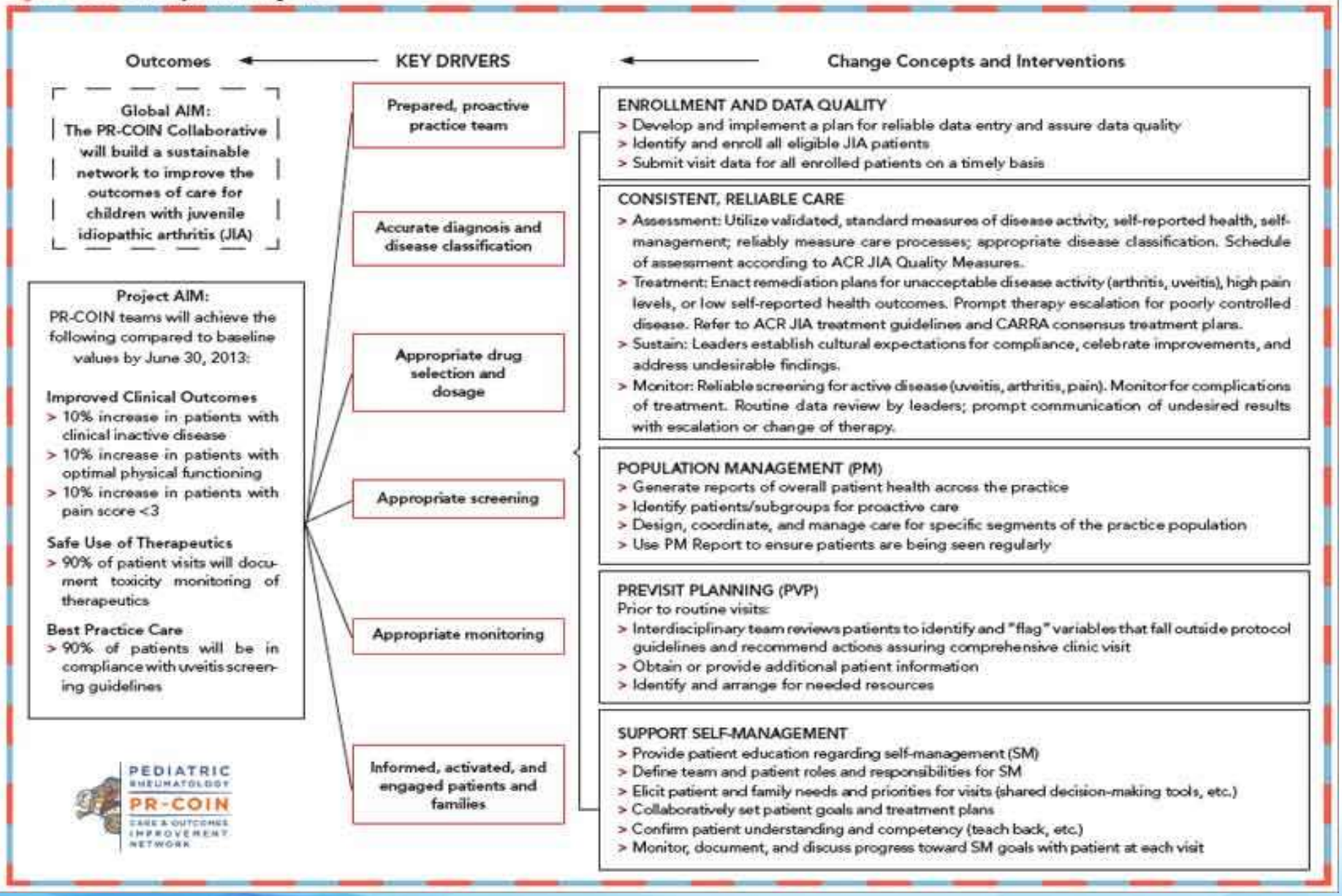
Measures/Goals

- 90% of patients assessed for ADHD will receive Vanderbilt assessments from the parent and teacher within 30 days of assessment initiation
- Physicians have a thorough, documented, initial conversation with the parent about ADHD and give an ADHD Resource Kit to 90% of parents/patients diagnosed with ADHD
- 60% of patients who are prescribed medication will receive follow-up Vanderbilt assessments from the parent and teacher within 30 days of medication initiation
- 80% of patients diagnosed with ADHD are prescribed behavior therapy (where behavior therapy is available)

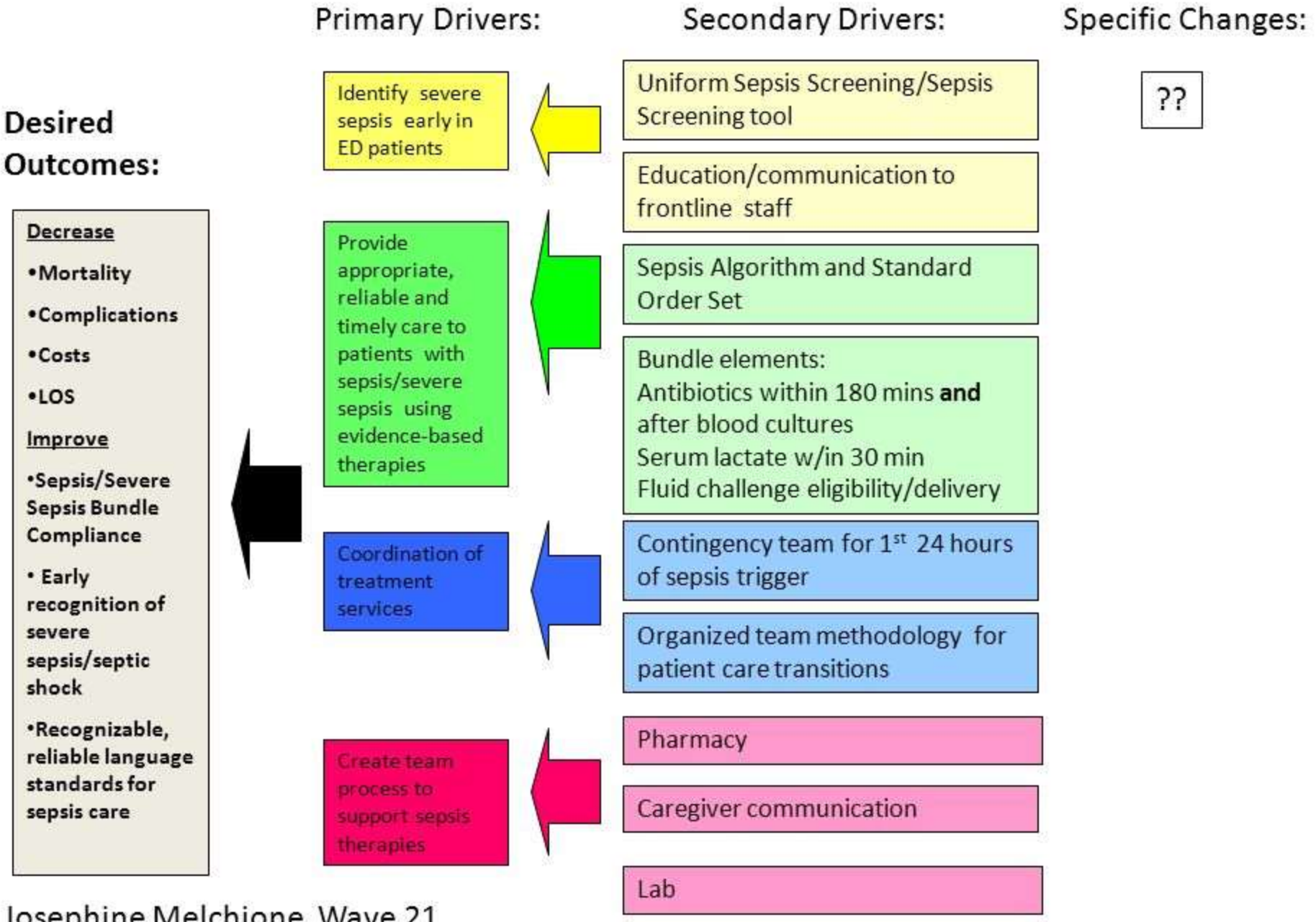
Key Drivers	Interventions
1. Improved diagnostic accuracy using evidence-based guidelines	• Complete the four registry* training modules • Determine office flow for ADHD care by establishing roles and responsibilities of the care team • Collect parent and teacher rating scales as part of the ADHD diagnostic process • Use a registry to improve reliability in obtaining ADHD rating scales for assessment • Screen for co-morbidities and consider them in the differential diagnoses
2. Reliable systems that ensure effective titration of medications and monitoring of side effects based on parent and teacher feedback	• Deploy tools that enable collaborative clinical, parent and school interactions, such as an online message center and school-home report card • Educate parents about the use of registries, including data privacy • Collect parent and teacher rating scales to assess efficacy and side effects of medication after initial prescription and with subsequent medication titration
3. Effective follow-up and surveillance for co-morbidities	• Establish and follow practice protocol according to published AAP guidelines • Use a registry to document follow-up care • Use parent and teacher rating scales to assess medication efficacy and side effects • Adjust medication if not effective or side effects are excessive • Assess whether co-morbidities are present if medication is not effective or side effects persist, worsen • Refer patient to a mental health professional if complex co-morbidities or non-responder to repeated treatment attempts
4. Partnerships with parents and teachers for effective behavior management	• Set expectations and therapeutic goals for medication and behavior therapy • Provide resources to parents (ADHD Resource Kit) that address parent support, teacher/school communication and behavioral health • Introduce daily school-home report card
5. Use of population health strategies to manage children with ADHD and associated co-morbidities	• Use a registry to collect data for individual patient care and to track ADHD care quality • Run billing query to ensure patients identified are entered into the registry • Document workflows, protocols and job descriptions • Assign roles and responsibilities for staff/clinicians to manage ADHD population • Use data to identify areas for improvement in clinical and operational processes
6. Active participation in a peer to peer learning network (or learning collaborative) with transparent data	• Attend monthly webinars and 2 face-to-face learning sessions • Conduct tests of change to address implementation of evidence-based ADHD care • Share best practices, tools, methods and approaches across the learning network • Review data regularly amongst practice improvement team and staff to drive improvement

** the registry for CQN ADHD Phase 1 (2015-16) is the mehealth ADHD portal*

Figure 1. PR-COIN Key Driver Diagram



Improve Severe Sepsis Care and Reduce Sepsis Mortality



Josephine Melchione, Wave 21

Driver Diagram

The Problem:

According to Anti-Microbial Stewardship (AMS) pharmacist, Rehab Unit has a high rate of unnecessary commencement of antibiotics for Urinary Tract Infections (UTI).

Aim Statement

Within 6 months, increase rate of appropriate antibiotic use for UTI to 90%.

Outcome Measure:
- *How much?* To 90%
- *By when?* 6 months

Team Members:

- **Team Leaders**– AMS pharmacist + CNE
- NUM of unit
- Snr Registrar
- JMO
- Registrar
- Snr Clinician
- Clinical microbiologist / ID MO
- Ward pharmacist
- Consumer

Sponsor: Unit Director

Primary Drivers & Relationship Arrows

Improve the accuracy of attitudes and beliefs about appropriate antibiotic commencement among staff

Process Measure:
- *How much? 50% of staff have a changed attitudes and beliefs*
- *By when? 3 months*

Improve coordination of the multidisciplinary teams working in the unit

Process Measure:
- *How much? 100% of teams in the unit*
- *By when? 6 months*

Improve the integrity and completeness of the diagnostic process

Process Measure:
- *How much? 50% improvement in diagnostic accuracy for UTI*
- *By when? 3 months*

Increase rate of appropriate testing and investigations for UTI

Process Measure:
- *How much? Increase rate by 70%*
- *By when? 6 months*

Improve understanding and interpreting of investigations relating to UTI

Process Measure:
- *How much? 70% of staff demonstrate improved understanding*
- *By when? 6 months*

Secondary Drivers & Relationship Arrows

- Eliminate myths associated with UTIs in older patient populations
- Deconstruct myths that antibiotics are harmless medicines
- Increase the number of rounds per week that is attended by both ward pharmacist and medical team
- Increase availability of clinical microbiologist for advice
- Increase time spent on differential diagnosis prior to prescribing ABx
- Increase awareness of potential alternative diagnoses for UTIs signs or symptoms
- Improve perception regarding the usefulness, cost and time burden associated with UTI investigations
- Remove barriers that preclude appropriate testing for UTI diagnosis
- Increase education on how to interpret UA results
- Improve language used and recommendations provided on microbiology reports

Change Ideas

- Clinical microbiologist and AMS pharmacist to provide myth busting in-services
- Ward pharmacist trained in academic detailing regarding antibiotic use
- Run poster campaign on truth vs. myths in antibiotics
- Ward pharmacist to be paged by medical team at beginning of ward round
- 3 ward rounds a week are pre-booked in MDT's calendars
- Clinical microbiologist to offer dedicated times to provide advice
- Clinical microbiologist is provided with on-call pager for unit
- Allocate time for differential diagnosing in rounding checklist
- New policy to institute documentation of differential diagnosis in healthcare record
- Implement CEC's decision support tool for urine specimen collection
- Preformat lab order form
- Provide nursing and medicine staff with clinical skills training
- Clinical microbiology team to review and update micro reporting templates
- Clinical microbiology team to provide cheat sheet on how to interpret urine results

Priority PDSA

- Impact: High / Implementation: Easy ✓
- Impact: High / Implementation: Hard
- Impact: Low / Implementation: Easy
- Impact: Low / Implementation: Easy
- Impact: Low / Implementation: Easy
- Impact: High / Implementation: Easy ✓
- Impact: High / Implementation: Hard
- Impact: High / Implementation: Easy ✓
- Impact: Low / Implementation: Easy
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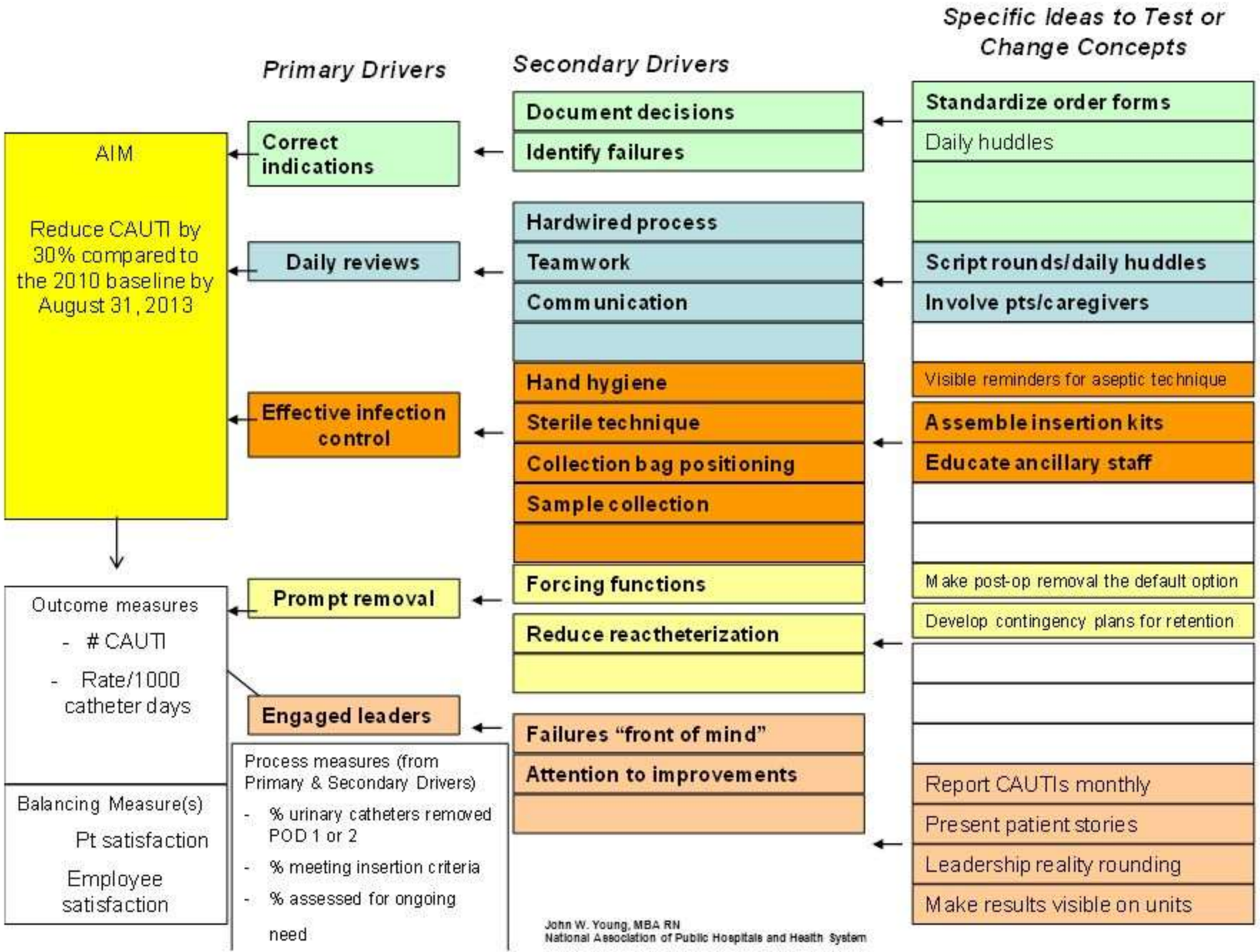
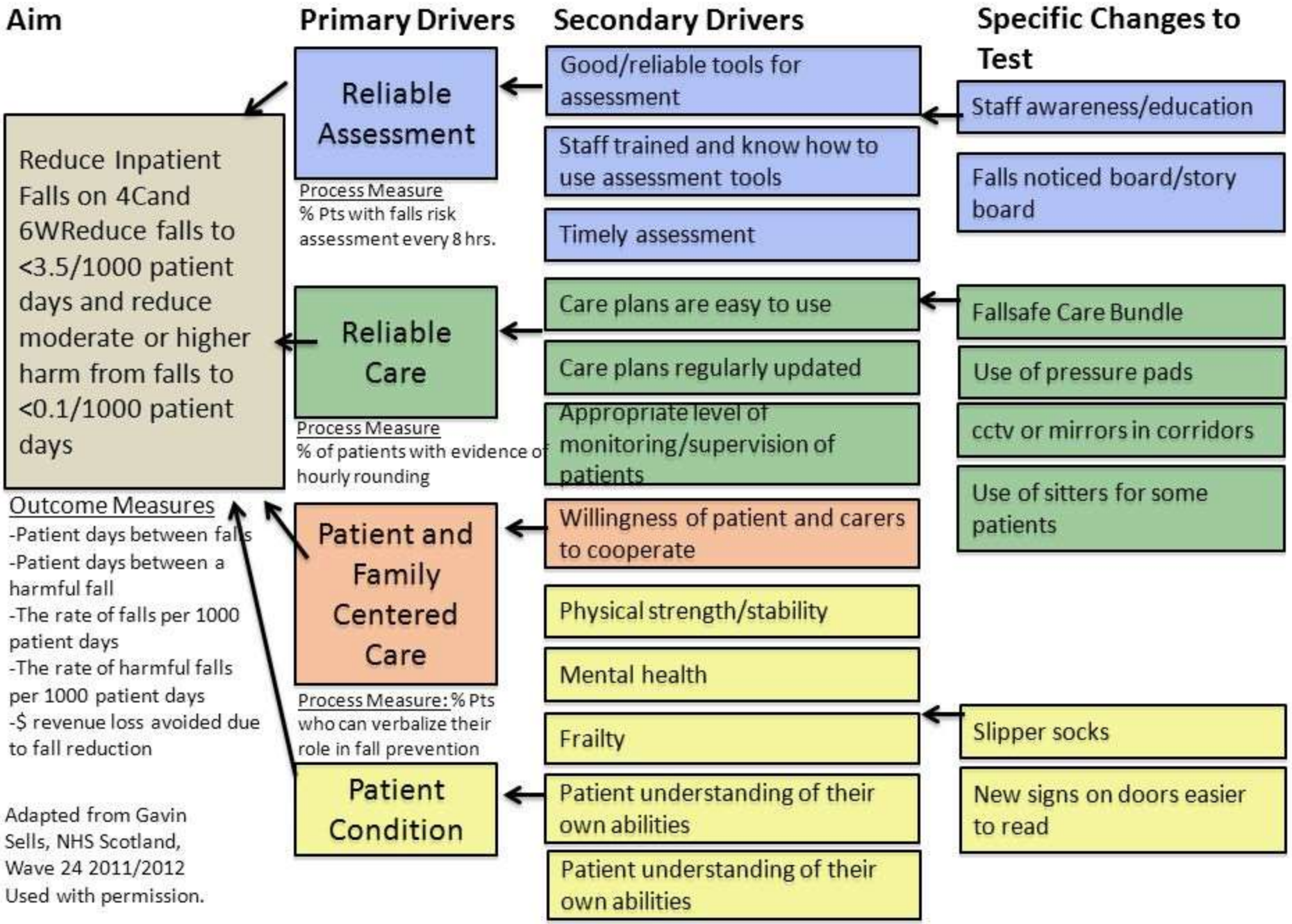
- Impact: High / Implementation: Easy ✓

Driver Diagram



Driver Diagram for Reducing In-Patient Falls



Adapted from Gavin Sells, NHS Scotland, Wave 24 2011/2012
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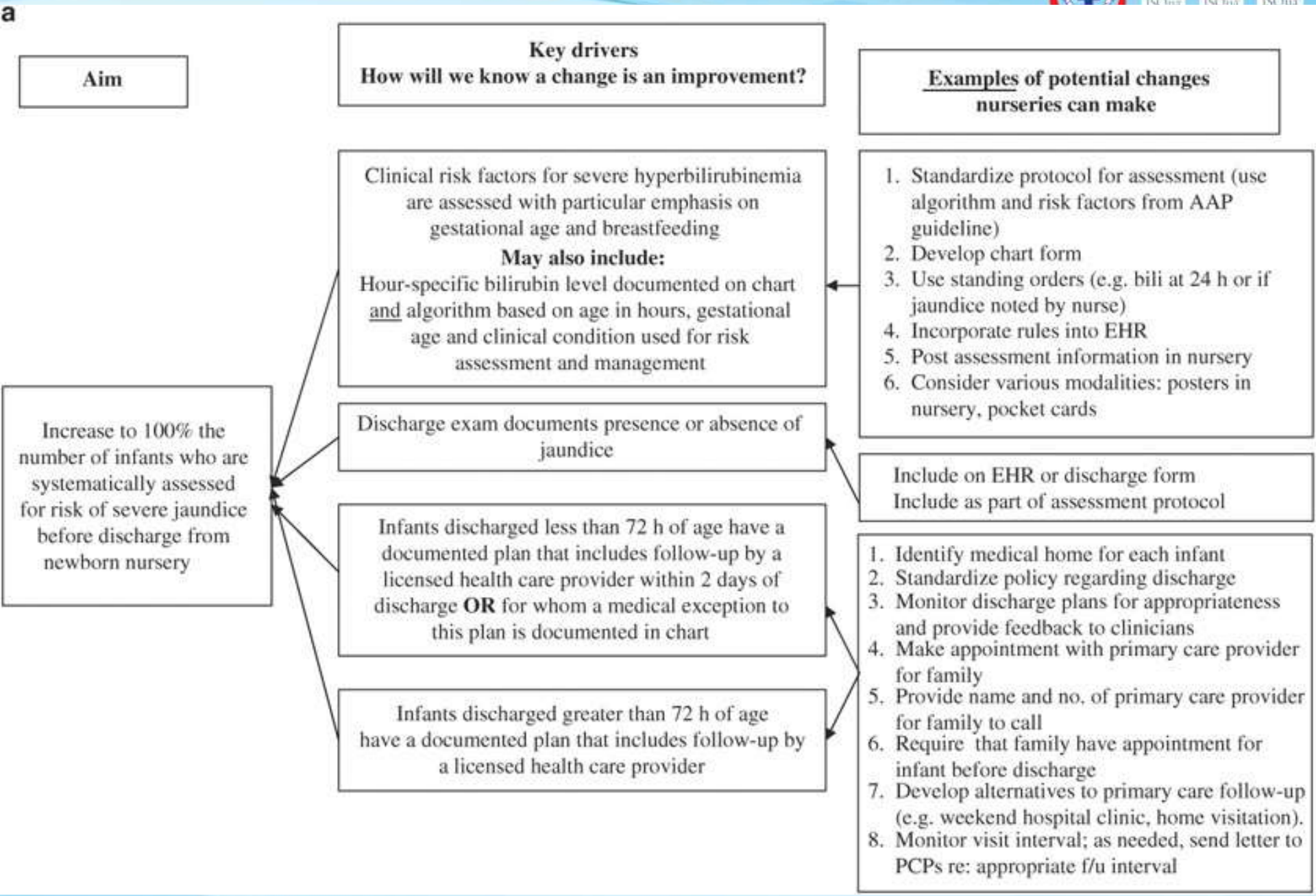
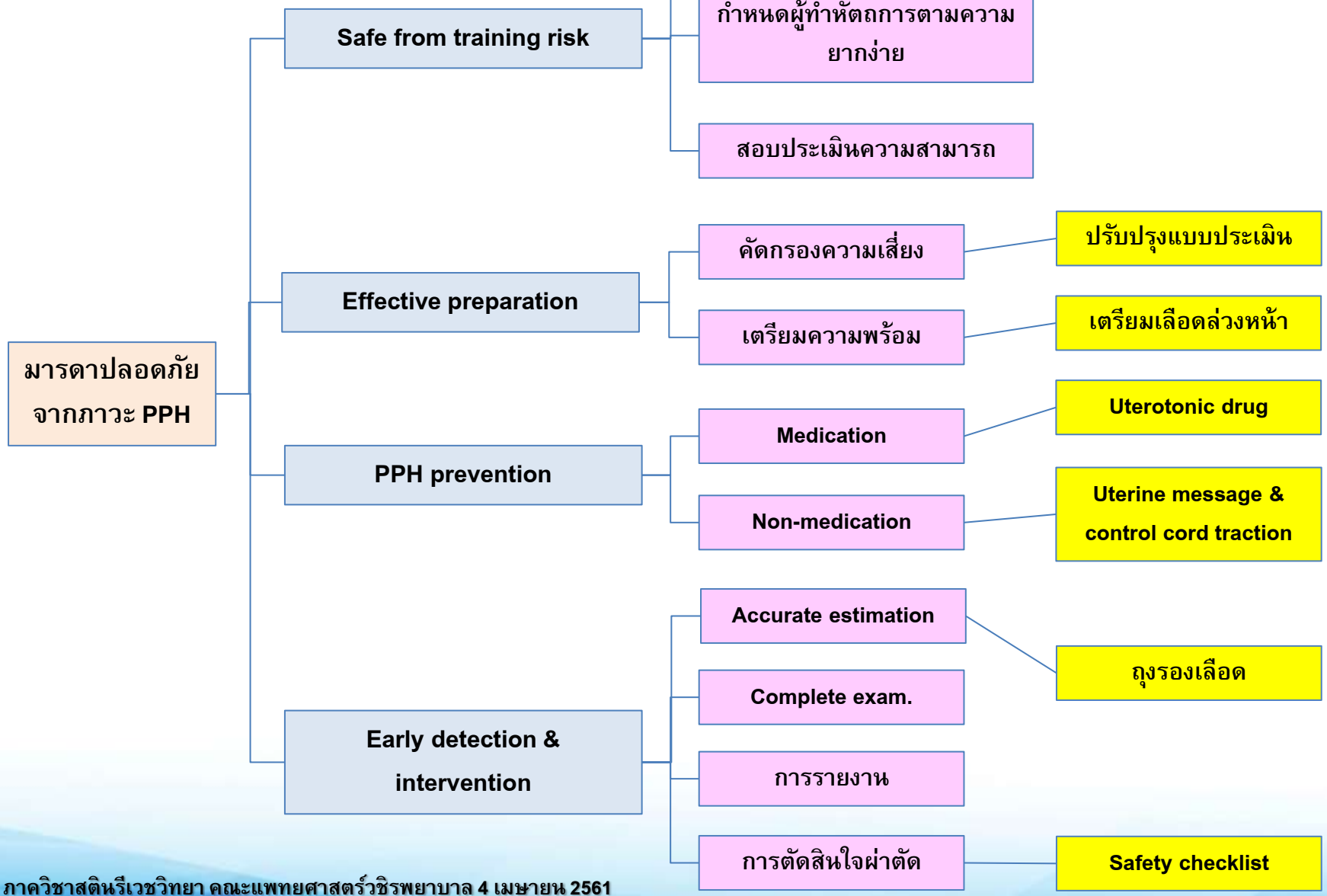
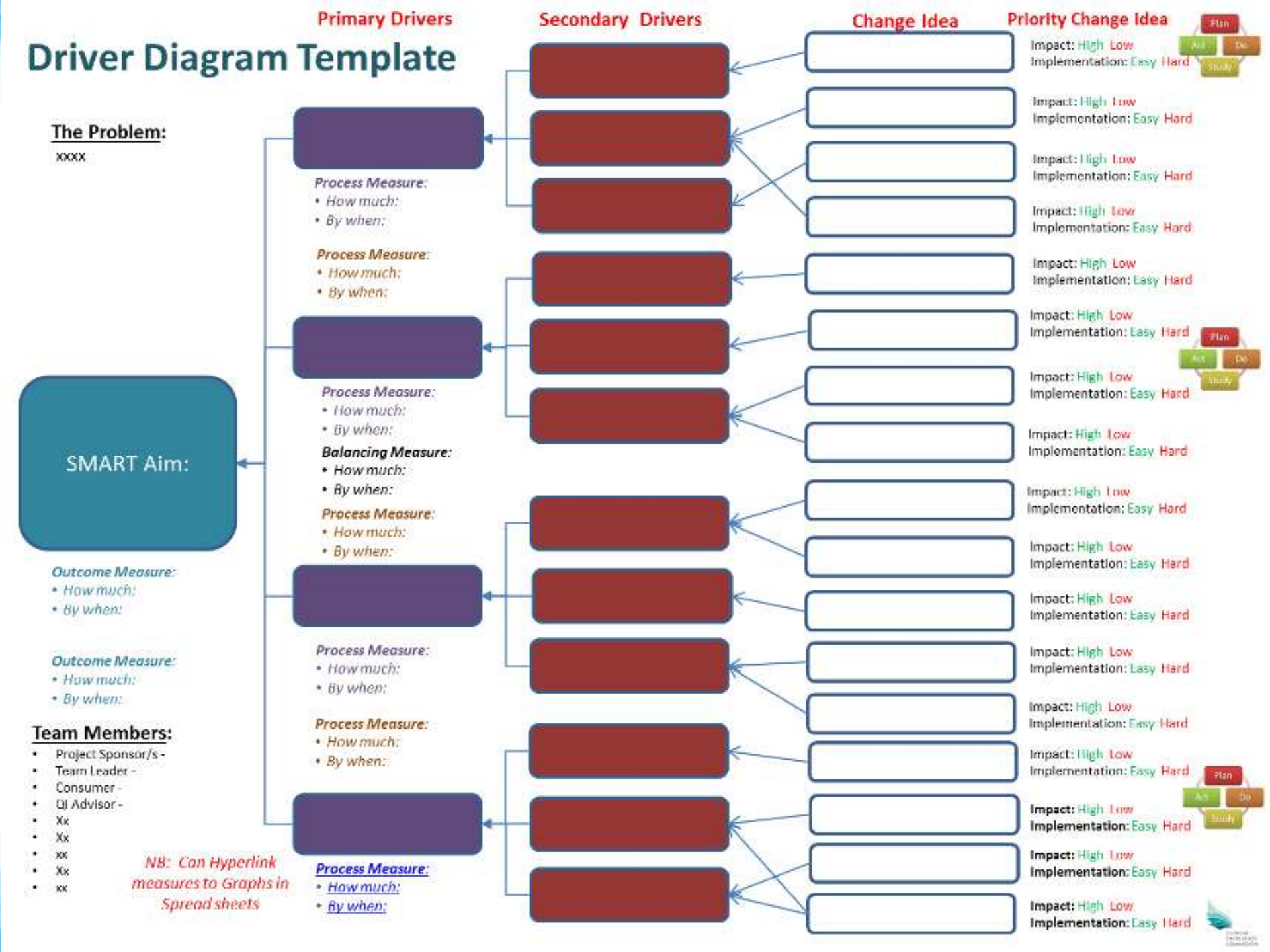

Aim
Increase to 100% the number of infants who are systematically assessed for risk of severe jaundice before discharge from newborn nursery
Key drivers
How will we know a change is an improvement?
Clinical risk factors for severe hyperbilirubinemia are assessed with particular emphasis on gestational age and breastfeeding
May also include:
Hour-specific bilirubin level documented on chart and algorithm based on age in hours, gestational age and clinical condition used for risk assessment and management
Discharge exam documents presence or absence of jaundice
Infants discharged less than 72 h of age have a documented plan that includes follow-up by a licensed health care provider within 2 days of discharge OR for whom a medical exception to this plan is documented in chart
Infants discharged greater than 72 h of age have a documented plan that includes follow-up by a licensed health care provider
Examples of potential changes nurseries can make
1. Standardize protocol for assessment (use algorithm and risk factors from AAP guideline)
2. Develop chart form
3. Use standing orders (e.g. bili at 24 h or if jaundice noted by nurse)
4. Incorporate rules into EHR
5. Post assessment information in nursery
6. Consider various modalities: posters in nursery, pocket cards
Include on EHR or discharge form
Include as part of assessment protocol
1. Identify medical home for each infant
2. Standardize policy regarding discharge
3. Monitor discharge plans for appropriateness and provide feedback to clinicians
4. Make appointment with primary care provider for family
5. Provide name and no. of primary care provider for family to call
6. Require that family have appointment for infant before discharge
7. Develop alternatives to primary care follow-up (e.g. weekend hospital clinic, home visitation).
8. Monitor visit interval; as needed, send letter to PCPs re: appropriate f/u interval

PPH Driver Diagram

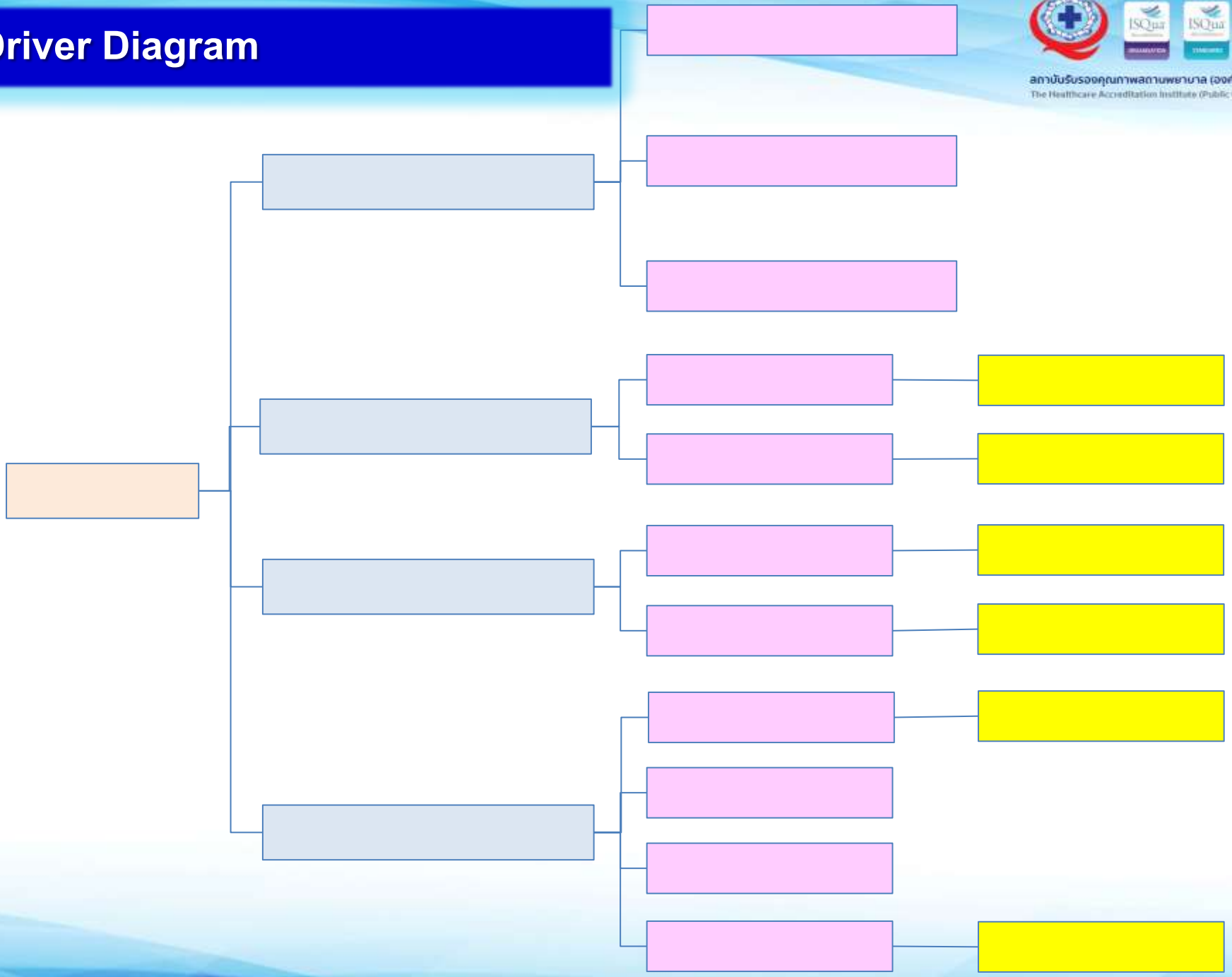


ที่มา: ภาควิชาสูตินรีเวชวิทยา คณะแพทยศาสตร์วชิรพยาบาล 4 เมษายน 2561

Driver Diagram Template



Driver Diagram



ศึกษาตัวอย่างผลงานพัฒนาคุณภาพ

สถาบันรับรองคุณภาพสถานพยาบาล (องค์การมหาชน)
The Healthcare Accreditation Institute (Public Organization)

- ใช้ Driver Diagram วิเคราะห์ผลงานที่เป็นกรณีศึกษา (Aim-Driver-Intervention-KPI)
- ศึกษาการใช้เครื่องมือพัฒนาคุณภาพต่าง ๆ ว่ามีประโยชน์ในการวิเคราะห์ วางแผน และนำเสนอ อย่างไร
- ทดลองเขียนสรุปตาม PPT Template
- ถ้าจะนำผลงานนี้ไปใช้ขยายผลในหน่วยงานของท่าน จะต้องทำอะไรบ้าง