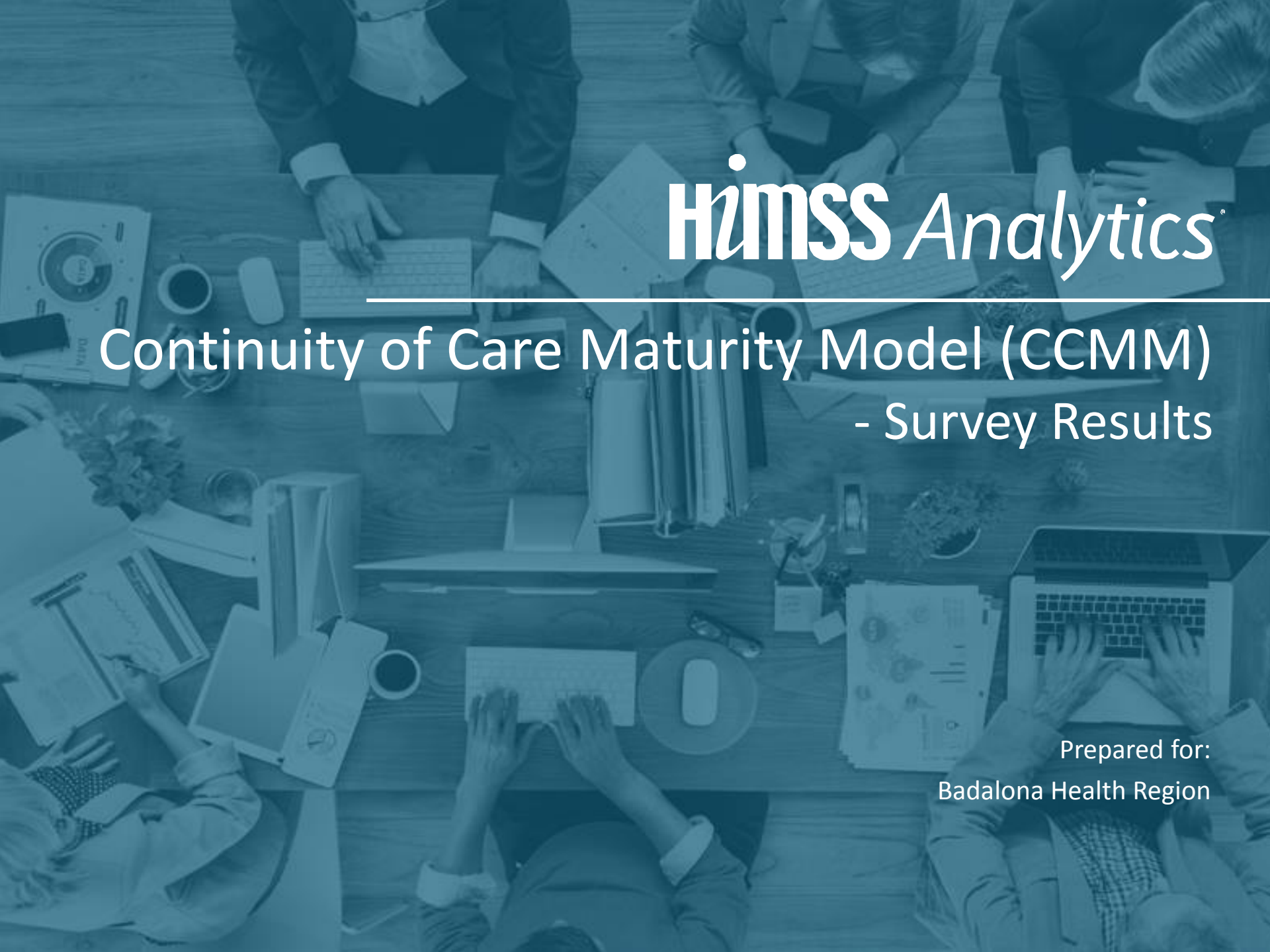


HIMSS Analytics

Continuity of Care Maturity Model (CCMM)
- Survey Results

Prepared for:

Badalona Health Region

AGENDA

- Continuity of Care – Some Background
- The Continuity of Care Maturity Model
- Methodology
- EMR Adoption and Healthcare Indicators
- Badalona Serveis Assistencials (BSA)
- Results
    - Stakeholder Group Achievements & Recommendations
    - Care Setting Achievements &
- Appendix

HIMSS Analytics

Continuity of Care – Some Background

WHAT IS “CONTINUITY OF CARE”?

Citizens’ perspective…

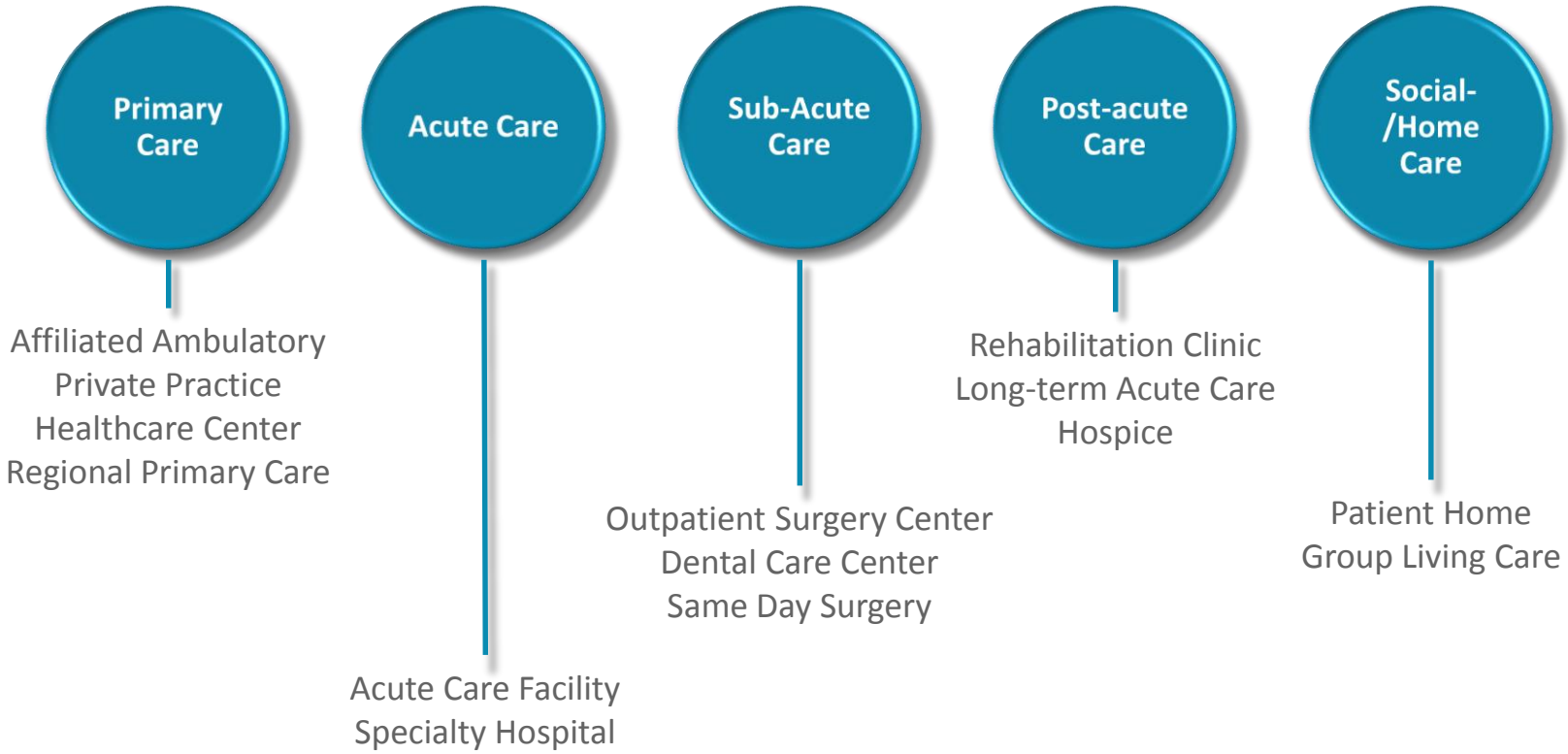
Non-disruption of care provided to a patient throughout his/her care journey, across care settings and care givers

Provider perspective…

Alignment of healthcare resources, across care settings, coordinated in a way that delivers the best healthcare services and value possible for a defined population

WHAT IS A CARE SETTING?

To be defined for YOUR CCMM assessment



CARE SETTING ORIENTATION

Traditional Silo'ed

- **Isolated Decisions**
  - Errors
  - Increased Diagnosis
- **Uncoordinated Care**
  - Isolated care episodes
  - Lost efficiencies
  - Lost opportunity
- **Increased Costs**
  - Inefficient system usage
  - Redundant services
- **Systemic Inefficiencies**
  - Lacks health info. sharing
  - Incomplete health picture

Coordinated

- **Health Information Exchange**
  - Health information sharing
  - Consolidated EMR
  - Semantic interoperability
- **Coordinated Patient Care**
  - Coordinated treatment
  - Reduced Errors
  - Care team alerts
- **Advanced Analytics**
  - Population health
  - Patient specific CDS
- **Patient Engagement**
  - Personalized alerts, goals
  - EMR access, input
  - Mobile access

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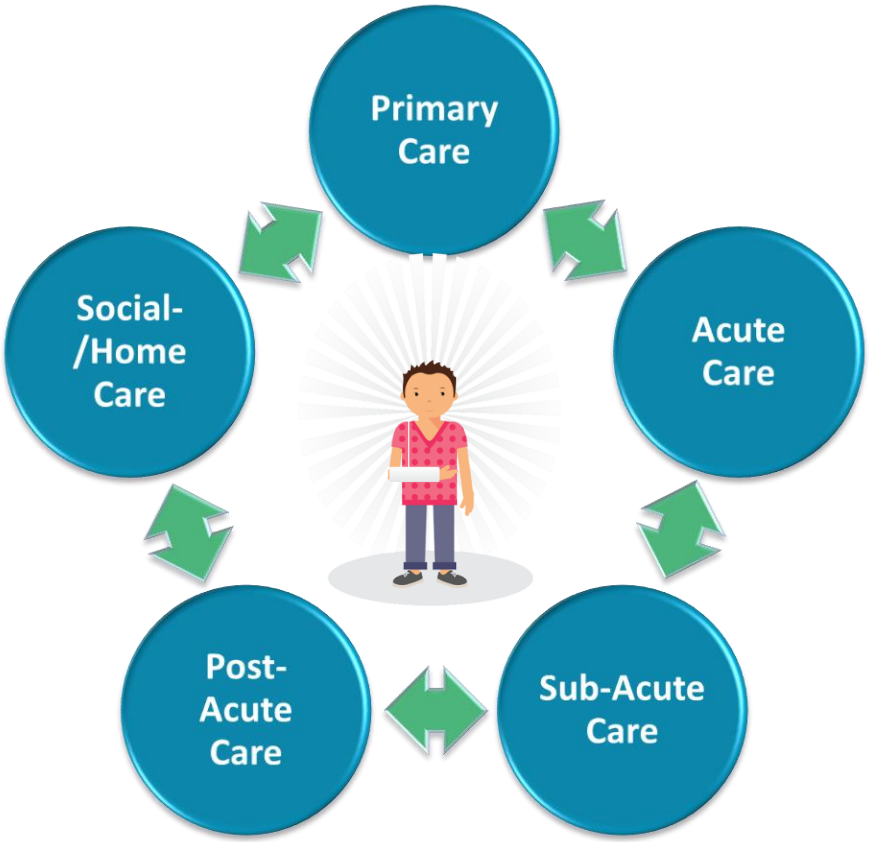
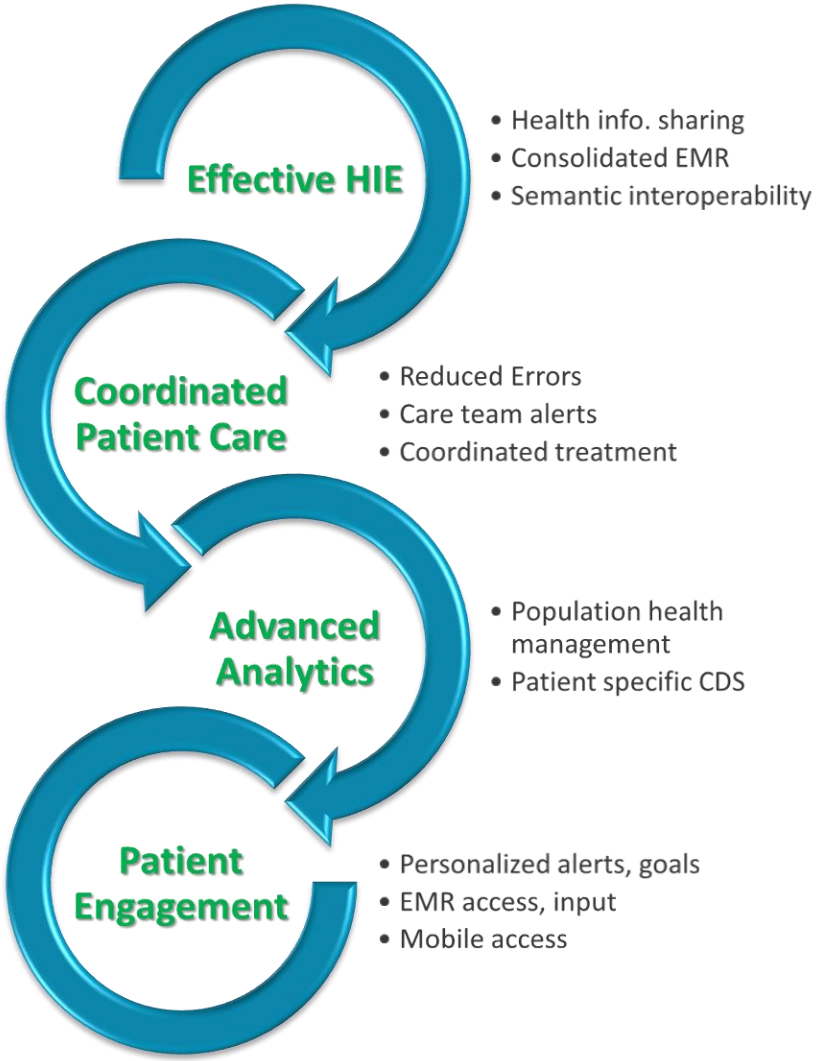
The Continuity of Care Maturity Model

OUR SOLUTION

A multidimensional maturity model promoting the key tenants of continuity of care





CONTINUITY OF CARE MATURITY MODEL

Overview

- Improve care coordination over diverse care settings
- Engages 3 key stakeholder groups
- Leverages an 7 stage maturity model, like EMR Adoption
  - 4 key focus areas theme for each stage, across entire model
- Aspirational model drives value based care approach
- Simple assessment survey
- Action oriented, strategically focused deliverables

CONTINUITY OF CARE MATURITY MODEL

The HIMSS Analytics CCMM is a framework detailing the progressive capabilities healthcare organizations need to possess in order to **seamlessly coordinate patient care across a continuum of care sites and providers**. The **model is scalable** from small populations to large.

The CCMM evaluates healthcare providers along the following four critical capabilities:

- **Health information exchange**
- **Coordinated patient care**
- **Advanced analytics**
- **Patient engagement**

As a result it reports a care community's maturity in terms of eight stages (Stage 0 "low maturity" to Stage 7 "high maturity").
All findings will be **broken down by care setting** (primary, acute, long-term care etc.) **and stakeholder group** (clinical, governance, information technology)

STAGE	HIMSS Analytics CCMM Continuity of Care Maturity Model Cumulative Capabilities
7	Knowledge driven engagement for a dynamic, multi-vendor, multi-organizational interconnected healthcare delivery model
6	Closed loop care coordination across care team members
5	Community wide patient record using applied information with patient engagement focus
4	Care coordination based on actionable data using a semantic interoperable patient record
3	Normalized patient record using structural interoperability
2	Patient centered clinical data using basic system-to-system exchange
1	Basic peer-to-peer data exchange
0	Limited or no e-communication

MULTIPLE MODEL STAKEHOLDERS

Administrators
CEO/COO/CFO/CSOs

Forge agreements, policies, and standards that allow and enable progress

Governance

Clinical

Information Technology

Clinical/Medical Leaders
CMIO/CNO/CNIOs

Drive clinical activities that enable and enhance coordinated care, pop health

Technology Leaders
CIOs

Build out Information & Technology that facilitates key strategies

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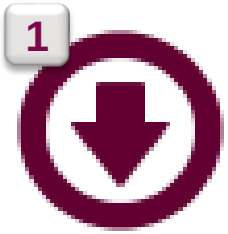
Methodology

METHODOLOGY

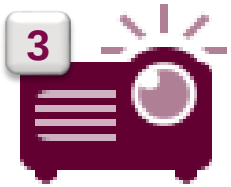


Definition of Care Community and Care Settings

- The **Care Community** for this engagement are the patients and citizens served by Badalona Serveis Assistencials SA. (BSA) in region Catalonia.
- Based on the requirements and objectives of BSA the survey was conducted for 4 different **Care Settings:**
    1. Primary Care
    2. Acute and Sub-Acute Care
    3. Intermediate Care (this includes Post-Acute Care, Long-Term Care)
    4. Homecare (including health and social care)

Data Collection

- Completion of **Survey** (>200 compliance statements, 5-point Likert Scale)
- 1st round of completion by appointed BSA representatives: Oct 11th – Oct 18th 2016
- 2nd round of completion in on-site workshop setting (face-2-face) with BSA and HIMSS representatives – Nov 9th 2016, participation form multiple stakeholders by care setting and focus area



Data Analysis and Reporting

- The data were analyzed using the HIMSS Analytics CCMM algorithm, with each compliance statement being weighted depending on Capability Maturity (Stage), Relevance (Essential vs. Advanced) and Response Value (5-point scale)
- Findings were reported in PowerPoint format, with a first draft delivered on Nov 18th 2016.
- Overall timeframe: The project was carried out between 09/26/2016 (“kick-off meeting”) and 11/25/2016 (“delivery of findings”)

SCORING TUTORIAL

7

Stage model, like the EMR Adoption Model

- Lowest is Stage 0, highest Stage 7
- Compliance measured using a 5-point Likert Scale

%

Overall and stage level achievement reported as a percentage

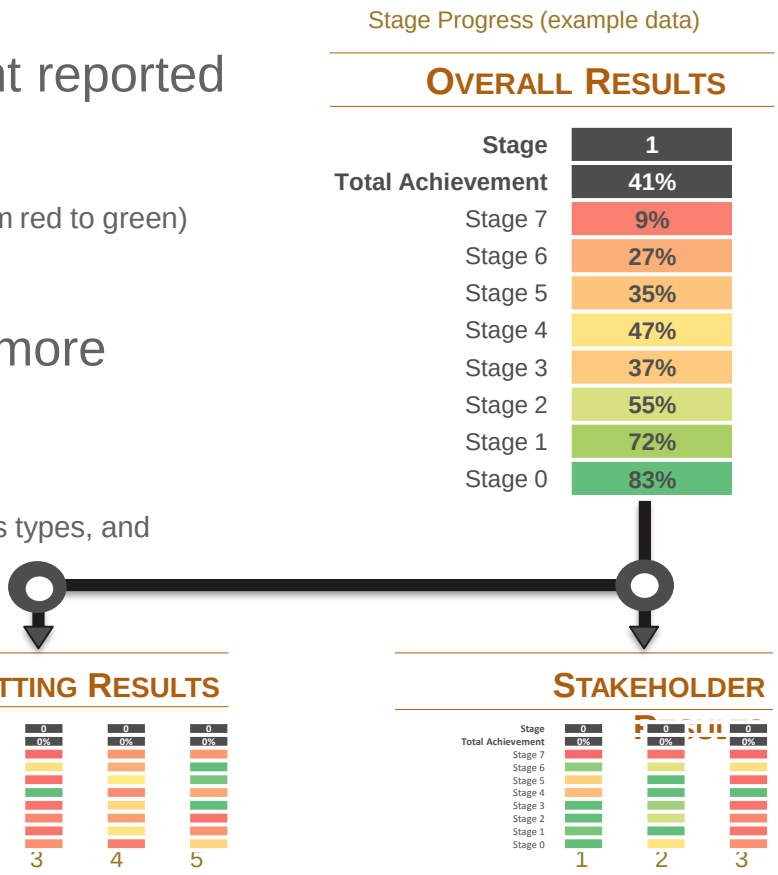
- Conveys overall achievement against requirements
- Color scale shows % achievement against each stage (from red to green)
- Shows areas of strength and opportunity

70%

Achieving a stage requires 70% or more compliance

- On that stage and all previous stages
- Your “Stage” standing is the highest stage achieved
- Accommodates different approaches in priorities, resources types, and execution of healthcare advancements

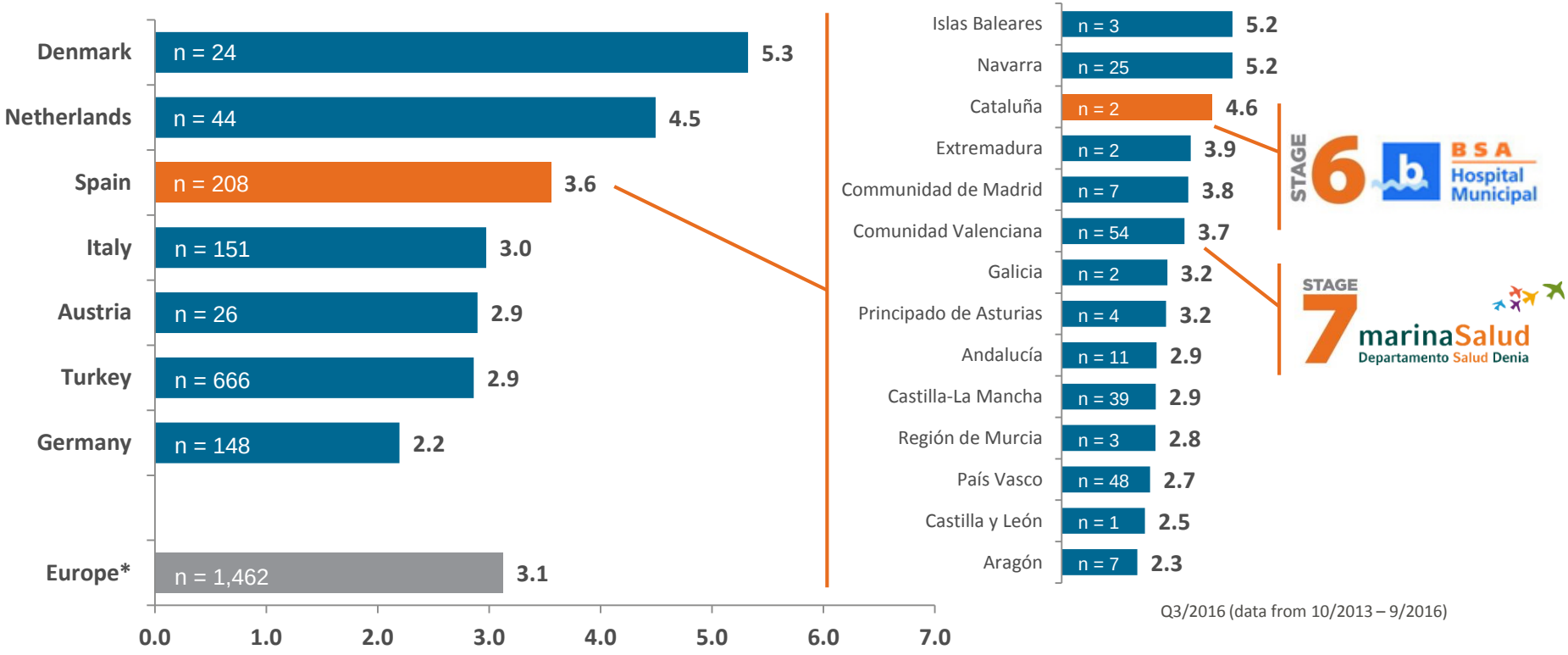
Stage Progress (example data)




HIMSS Analytics
EMR Adoption and Healthcare Indicators

EMR ADOPTION IN SPAIN AND EUROPE

Spain is one of the most digitally mature countries in the EU and technically advanced. Up to now 14 Spanish Hospitals have mastered Stage 6 and 1 hospital has reached Stage 7 on the EMR Adoption Model for operating in a paperless environment and representing the best practices in the implementation of Electronic Medical Records.



* This Includes countries listed in the figure above, plus: Belgium (15), Finland (1), France (17), Greece (1), Iceland (1), Ireland (2), Norway (3), Poland (14), Portugal (27), Slovenia (2), Switzerland (11) and United Kingdom (100)

HIMSS Analytics

Badalona Serveis Assistencials (BSA)

Development Overview

Care Population and Settings in Badalona

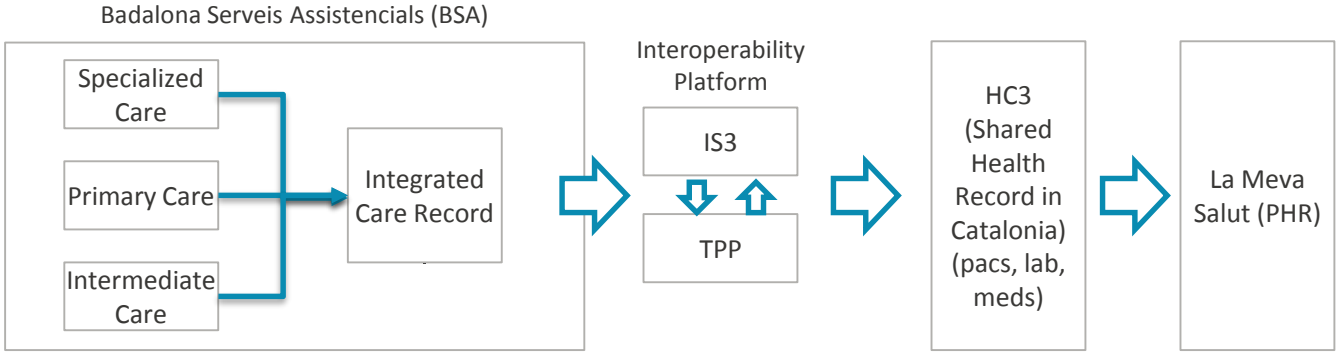
Projects regarding Continuity of Care

Key challenges regarding Continuity of Care

BADALONA SERVEIS ASSISTENCIALS (BSA)

Development Overview

- 1998 – Implementation of EMR in (Sub-)Acute Care
- 2000 – Vertical Integration of Care Settings
  social service was not well integrated → decision to put patient at the center and to put social service under authorisation of BSA; transition to electronic documentation within 3 years
- 2003 – Creation of Home Care Department to integrate Social/Home Care
- 2006 – Implementation of structured formats for clinical documentation
- 2009 – Implementation of EMR in Intermediate Care
- 2015 – Implementation of EHR (HC3) in Primary Care; integrated with all Catalonian Primary Care Centers



CARE POPULATION AND SETTINGS IN BADALONA

Primary Care	(Sub-)Acute Care	Intermediate Care	Social/Home Care
7 Primary Care Centers (Ambulatories) within the cities of Badalona, Montgat & Tiana	1 local Specialized Care Hospital that also includes the outpatient consultations	1 intermediate Care Hospital for the population based in the north of Barcelona (incl. Badalona, Montgat, Tiana, Masnou, Alella, Vilassar & Premià)	BSA currently manages a homecare service that provides both health and social services for homecare support.
CAP Morera-Pomar, CAP Apenins-Montigalà, CAP Montgat, CAP Tiana, CAP Progrés-Raval, CAP Martí Julià, CAP Nova Lloreda	Hospital Municipal de Badalona, Centre de Consultes externes Sant Anastasi	Centre Sociosanitari el Carme	Centre Sociosanitari el Carme
Structural Resources • 59 consulting rooms • 36 nursery rooms • 12 odontology rooms • 6 social work rooms • 11 continued assistance rooms • 19 polyvalent rooms	**Structural Resources** • 118 beds • 8 short stay beds • 26 rooms for outpatient services • 27 consulting rooms • 4 surgery rooms • 30 emergency boxes • 1 day hospital	**Structural Resources** • 209 beds • 50 rooms for outpatient services • 7 consulting rooms • 1 day hospital • 1 rehabilitation room	**Social services (2015 selection):** 5,356 dependency evaluations ● 4,805 services to the dependents ● 1,243 help at home (family workers) ● 6,172 telecare setting (panic button) ● 156 meals at home ● 234 cleaning at home ● 154 home fixings (provided by third sector) ● 54 GPS tracking system **Health services (2015 selection):** 975 medical/surgical hospital-at-home team ● 188 geriatrics hospital-at-home team ● 221 palliative care team ● 760 GPs home care ● 373 Nursing Home care ● 353 Regional Case Management ● 221 Oncologic Regional Case Management ● 600 telemonitoring ● 200 cognitive behavioral therapy for depression
Total assigned population: 117.823 people	Total assigned population: 237.244 people	Total assigned population: 529.582 people	Total assigned population: 237.244 people

PROJECTS REGARDING CONTINUITY OF CARE

A selection of ongoing or planned projects

Patient Self-Monitoring Pilots:

- Including disease-specific telemonitoring devices (e.g. ECG, blood glucose, scales, etc...) for patient self-management with online accessibility to integrate data capture from self-care
- Remote Patient Monitoring (RPM) is available outside of clinical settings (e.g.: in the home, mobile tools in various locations)

Education:

- A patient portal is used to provide patient specific education, encounter documents, smartphone or other "app" access, tutorials, pre-admission checklists, etc.

KEY CHALLENGES REGARDING CONTINUITY OF CARE

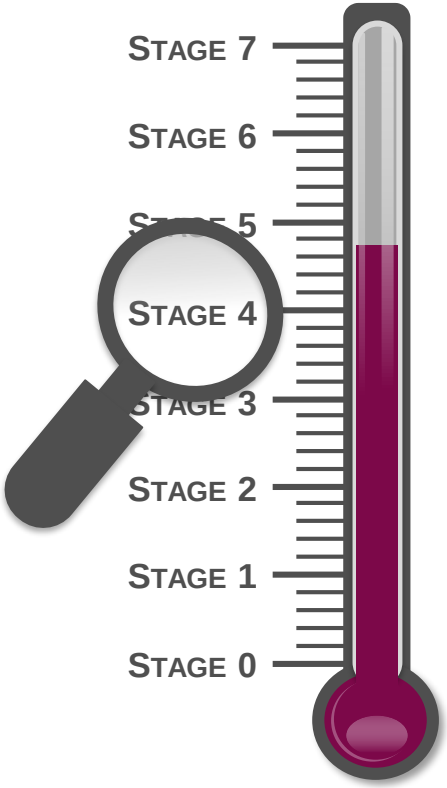
- Funding:
  - Metrics that the Gov current uses for reinbursment doesn‘t match the Gov of one organization managing serveral care settings (e.g. The volumne-based approach of the public health insurance („Catsalut“) conflicts with BSA‘s strategy of value-based care; both strategies needs to be alligned in order to avoid admissions on one hand and funding loss on the other hand)
- Interoperability
  - Issues between care settings still needs to be solved (e.g. not all primary care centers are connected)
  - Software of integration platform „IS3“ wasn‘t developed for healthcare purposes
  - Exchange of information (messaging) with specialists (e.g. Pharmacy messages from hospital to primary care)
  - Sharing information between out of area Secondary Care Providers is difficult
- Patient Self-Monitoring
  - Prescribe „validate apps“ to patients + integrate results with the EHR (medication adherence, weight, blood pressure etc.)
- La Meva Salut (LMS):
  - Increase the level of utilization (currently 6% of Catalonian inhabitants have access to LMS (25.000 people))
  - 40% of 65+ aged people are not spanish/catalonean speaking
  - Most health information comes from Primary Care


HIMSS Analytics
Results

EXECUTIVE SUMMARY

Overall Achievements

CONTINUITY OF CARE MATURITY SCORE	4
OVERALL % OF STAGE ACHIEVEMENT	76%



		STAGE	OVERALL	ACHIEVEMENT BY STAGE 1 2 3 4 5 6 7
CLINICAL	Patient Care Coordination	3	81%	
	Patient Engagement & Empowerment	0	49%	
	Analytics	4	62%	
	Health Information Exchange	3	80%	
GOVERNANCE	Organizational Strategy	2	90%	
	Health Authority Capabilities	4	92%	
	Policy Level Initiatives	7	100%	
INFO TECH	ICT Systems	4	82%	
	Standards & Interoperability	5	84%	
	Security & Privacy	4	78%	

Color Codes
red (0 to ≤ 0.5)
yellow (0.5 to < 0.7)
green (≥ 0.7 to 1)

EXECUTIVE SUMMARY

Overall Achievements

- Enabling continuity of care is a complex and challenging effort. HIMSS Analytics is not aware of any other care community that has undertaken the process so far that has demonstrated such strong progress.
- With an overall compliance achievement of 76% (out of 100% possible) BSA achieved the best Continuity of Care Maturity worldwide in comparison to other CCMM assessments of HIMSS.
- Policy Level Initiatives in BSA represent the strongest pillar of the governance stakeholder with a compliance achievement of 100% (Stage 7). The single structure governance is a key enabler to drive the overall CCMM achievement in Badalona. This is expressed in strong governance policies for business continuity, clinical coordination and interconnectivity between healthcare providers and patients. BSA has advanced data exchange capabilities, especially with external care providers in the same region.
- Continuity of Care puts the patient at the center of care provision, with the concept of Patient Engagement & Empowerment increasing in importance. BSA is more advanced than other health care regions. Patients have online access to a pan-organizational Personal Health Record (via “La Meva Salut”) to view demographic and medical information (e.g. diagnoses, diagnostic lab and radiology results, medication prescriptions) and to use tele-consultations etc.
- To provide online access to general health, disease-specific, wellness, and prevention information in the form of "apps", online tutorials, and/or checklists and to allow patients to update their personal health status data will increase the Patient Engagement & Empowerment achievements. Pilots for self-management including disease-specific telemonitoring devices exist and score points on higher stages of the CCMM.
- ICT Systems, Standards & Interoperability, and Security & Privacy are in advanced status and support care coordination based on actionable data from interoperable patient records.

EXECUTIVE SUMMARY

Stakeholder Results

Continuity of care engages multiple stakeholders across many organizations and progress can only be achieved in a team effort. High level CCMM results by stakeholder group reveal the following:

- **Information Technology stakeholders achieved Stage 4** with continuously decreasing capabilities from Stage 1 to 6. Obviously Stage 7 achievements are high gaps in Stage 5 and Stage 6 require further development to reach higher stages.
- **Clinical stakeholder achievement is 65%** and trails behind the overall results for the region. Better collaboration with the Sub-Acute & Acute-Care settings would help improve overall achievement although the capabilities in all clinical care settings are on a comparable level.
- **Governance stakeholders have the most advanced achievement.** They achieve Stage 6 of the CCMM and fulfill 93% of requirements. Between Stage 1 and Stage 6 the capabilities are relatively consistent and gently dipping on Stage 7.

	Overall	Clinical	Governance	Info Tech
Stage	4	3	6	4
Total Achievement	76%	65%	93%	81%
Stage 7	46%	38%	63%	75%
Stage 6	59%	51%	89%	38%
Stage 5	64%	62%	80%	59%
Stage 4	71%	50%	100%	85%
Stage 3	83%	77%	90%	90%
Stage 2	85%	75%	98%	94%
Stage 1	91%	77%	100%	100%

EXECUTIVE SUMMARY

Care Setting Results

1.200 professionals meet the challenge to provide Continuity of Care for more than 200.000 citizens and each care setting might have made different progress. Looking at the CCMM results by care setting reveals the following:

- **Primary Care and Social/Home Care are very similar in their CCMM compliance**. Both settings achieve Stage 4 of the CCMM and meet 76% to 77% of all requirements. Gaps exist in the area of patient portal capabilities and advanced analytics.
- **Intermediate Care remains on Stage 4 of the model** due to further development potentialities in the area of patient engagement & empowerment, but fulfills already capabilities to achieve Stage 7.
- **Sub-Acute and Acute-Care achieved 72% and Stage 3 on the CCMM.** Higher stages can be achieved through an increasing health information exchange efficiency, advanced analytics and the functional range of patient portals as well as advanced analytics.

	Overall	Primary Care	(Sub-) Acute Care	Intermediate Care	Social/Home Care
Stage	4	4	3	4	4
Total Achievement	76%	76%	72%	80%	77%
Stage 7	46%	35%	40%	75%	35%
Stage 6	59%	51%	55%	76%	55%
Stage 5	64%	63%	60%	67%	67%
Stage 4	71%	71%	68%	74%	73%
Stage 3	83%	86%	75%	84%	86%
Stage 2	85%	90%	82%	84%	86%
Stage 1	91%	92%	88%	91%	92%

HIMSS Analytics

Stakeholder Group Achievements & Recommendations

Governance

Clinical

Information Technology

GOVERNANCE FOCUS

Governance stakeholders drive the focus and strategy of the organization. They are forward and future thinking, anticipating what needs to be done and how the organization will evolve.

HIMSS Analytics CCMM Governance Focus	
STAGE 7	National and local policies are aligned.
STAGE 6	Policies address non-compliance.
STAGE 5	Best clinical practices are derived from care community healthcare data and operationalized across the community
STAGE 4	Policies in place for collaboration, data security, mobile device use, and interconnectivity between healthcare providers and patients
STAGE 3	Data governance across organizations
STAGE 2	Policies drive clinical coordination, semantic interoperability. Change management is documented and standardized
STAGE 1	Policies for CofC strategy, business continuity, disaster recovery, And security & privacy. Data governance is active
STAGE 0	Governance is informal and undocumented

RESULTS

GOVERNANCE | CLINICAL | INFO TECH

Governance stakeholders achieve a similar level of compliance across all evaluated care settings given that a centralized governance structure exists.

	PRIMARY CARE	(SUB-) ACUTE CARE	INTERMEDIATE CARE	SOCIAL/HOME CARE
Stage	6	6	6	6
Total Achievement	93%	93%	94%	94%
Stage 7	63%	63%	63%	63%
Stage 6	82%	91%	91%	91%
Stage 5	81%	78%	81%	81%
Stage 4	100%	100%	100%	100%
Stage 3	90%	90%	90%	90%
Stage 2	98%	98%	98%	98%
Stage 1	100%	100%	100%	100%

Governance focus includes:

Organizational Strategy

Health Authority Capabilities including HIE to Authority

Policy Level Initiatives

RECOMMENDATIONS

Governance Stakeholders

Stage 3 & 5 Recommendations

- Document a strategy and process to leverage advanced and predictive analytics for clinical decision making and financial improvements. (e.g. Using the advanced analytics capability to fully understand the financial implications and quality improvements associated with transferring current activity associated with secondary care into community services or home care for patients with long term conditions such as diabetes and COPD.)
- Enable the inclusion of data from multiple care settings and promoting the use of citizen's PHR use (e.g. Measure the additional health gain / wellbeing associated with patient engagement and empowerment.)
- Focus on self-reported data uploads to drive patient

Stage 7 Recommendations

- Continue to fully participate in international Electronic Health Record sharing across care settings and between providers of similar settings (e.g. Tourists, health tourists also to these out of area hard to reach secondary care providers)

CLINICAL FOCUS

Clinical stakeholders drive the clinical focus and value of the organization. They identify the most important clinical trends and refinements and drive clinical operations. They are the overall caretakers of the population.

HIMSS Analytics CCMM Clinical Focus	
STAGE 7	Comprehensive pop-health. Completely coordinated care across all care settings. Integrated personalized medicine
STAGE 6	Dynamic intelligent patient record tracks closed loop care delivery. Multiple care pathways/protocols. Patient compliance tracking
STAGE 5	Community-wide patient record with integrated care plans, bio-surveillance. Patient data entry, personal targets, alerts.
STAGE 4	Shared care plans track, update, task coordination with alerts and reminders. ePrescribing. Pandemic tracking and analytics.
STAGE 3	Multiple entity clinical data integration. Regional/national PACS. Electronic referrals, consent. Telemedicine capable.
STAGE 2	Patient record available to multi-disciplinary internal and tethered care teams. EMR exchange. Immunization and disease registries.
STAGE 1	Limited shared care plans outside the organization. Leverage 3rd party reference resources. Basic alerts.
STAGE 0	Engaged in EMR/EHR maturation

RESULTS

GOVERNANCE | CLINICAL | INFO TECH

Clinical stakeholders achieve similar results in Primary Care, Intermediate Care and Social/Home Care. In (Sub-)Acute Care clinical achievements in relation to continuity of care are lowest.

Clinical focus includes:

Coordinated Care

Patient Engagement

Analytics

HIE Provider to Provider

	Primary Care	(Sub-) Acute Care	Intermediate Care	Social/Home Care
Stage	3	0	3	3
Total Achievement	68%	56%	71%	66%
Stage 7	21%	29%	79%	21%
Stage 6	43%	42%	77%	43%
Stage 5	65%	52%	64%	65%
Stage 4	51%	42%	54%	52%
Stage 3	83%	62%	80%	83%
Stage 2	83%	67%	72%	76%
Stage 1	81%	69.8%	77%	81%

RECOMMENDATIONS

Clinical Stakeholders

Stage 1 Recommendations

- There is significant opportunity to improve Citizen & patient engagement and empowerment scores by providing greater access to education sources such as general health, disease-specific, wellness, and disease prevention information. Also consider online tutorials, and/or checklists supplied by the care provider to help citizens identify their health risk, provide education, and initiate self-care/monitoring activities.
- Based on the model of Primary Care and Social/Home secured email messaging for electronic communication with patients should be implemented in (Sub-) Acute & Intermediate Care settings.

Stage 2 & 3 Recommendations

- Escalate patient portal capabilities to facilitate billing, payment, and non-physician interaction including financial services or counseling or satisfaction surveys. Allow patients to give informed consent and to manage access rights to their clinical records via patient controlled access (PCA).
- Increase the share of normalized data to empower decision making for optimized care delivery in Primary & (Sub-) Acute Care settings.
- Remote Patient Monitoring (RPM) pilots exist in BSA. The increasing use of RPM outside of clinical settings (e.g. In the home, mobile tools in various locations) increases the level of Health Information Exchange sophistication especially in the (Sub-)Acute and Intermediate Care setting (e.g. the ability to submit clinical measurements from home or from mobile devices. BP, weight, spirometry, blood glucose as well as from mobile devices such as fitbits, cardiobelts)

Stage 4 & 5 Recommendations

- Consider using Clinical Decision Support (CDS) functionalities to support clinical ordering across the core care team
- Provide patients with online access to clinical functions to update their personal health status data, to initiate and/or manage automated alerts/reminders, to update patient information (e.g. billing address, insurance details etc.), to upload data from self-care/-monitoring activities (e.g. blood presure monitors, heart rate monitors, FitBit etc.), lifestyle or wellness mangement tools and to upload/review provided medical data from telemonitoring devices (e.g. blood glucose). Enable patients to have online access to a patient-centric view of their individual health planning goals, personal targets and reporting services and audit capabilities showing who has accessed what information and when.

IT FOCUS

IT stakeholders support clinical stakeholder initiatives and implement governance stakeholder policies and strategy, performing a delicate balance between maintaining and optimizing operational systems while extending and modernizing capabilities and technology.

HIMSS Analytics CCMM IT Focus

STAGE 7	Near real-time care community based health record and patient profile
STAGE 6	Organizational, pan-organizational, and community-wide CDS and population health tracking
STAGE 5	Patient data aggregated into a single cohesive record. Mobile tech engages patients. Community wide identity management
STAGE 4	All care team members have access to all data. Semantic data drives actionable CDS and analytics. Comprehensive audit trail
STAGE 3	Aggregated clinical and financial data. Medical classification and vocabulary tools are pervasive. Mobile tech supports point of care
STAGE 2	Patient-centered clinical data presentation. Pervasive electronic automated ID management for patients, providers, and facilities
STAGE 1	Some external data incorporated into patient record.
STAGE 0	Data is isolated

RESULTS

GOVERNANCE | CLINICAL | INFO TECH

Information Technology stakeholders achieve strong results in all care settings, while the compliance with CCMM requirements are lower in primary care.

IT focus includes:

ICT Systems

Standards & Interoperability

Security & Privacy

	PRIMARY CARE	(SUB-) ACUTE CARE	INTERMEDIATE CARE	SOCIAL/HOME CARE
Stage	**4**	**4**	**4**	**4**
Total Achievement	**77%**	**82%**	**82%**	**82%**
Stage 7	75%	75%	75%	75%
Stage 6	25%	42%	42%	42%
Stage 5	47%	63%	63%	63%
Stage 4	83%	86%	86%	86%
Stage 3	90%	90%	90%	90%
Stage 2	94%	94%	94%	94%
Stage 1	100%	100%	100%	100%

RECOMMENDATIONS

IT Stakeholders

Stage 4 & 5 Recommendations

- Escalate use of Natural Language Processing to integrate clinical documentation in structured format to a patient record and to ease documentation processes of clinicians (e.g. BSA traumatologists use it already to process natural language and to integrate the results in the medical record).
- Use semantic data in support of population health management including tracking vaccination programs, flu outbreak activity, and other epidemic/pandemic activities to refine documented standards for best practice care treatment for the care communities' most prevalent diseases. Utilize semantic data to provide actionable Clinical Decision Support and advanced analytics including drug interaction, age and sex appropriate findings as well as diagnosis recommendations.
- Consider providing a comprehensive audit trail of whom accessed what information for both internal auditing and patient benefit / assurance. Extending this capability to allow automated alerts to be sent if data is over-accessed. This should be considered as the norm instead of manual control or patient's request.

Stage 6 Recommendations

- Integrate medical data into organizational, pan-organizational, and community-wide clinical decision support systems to enable automated care support capabilities in support of single assessment processes.
- Consider further implementation of data standards for all types of clinical and related financial data as well as care standards for clinical practice guidelines and care protocols
- Improve patient controlled access to limit access of care provider to specific elements/sections of their PHR (e.g. manage access by role, opt in/out) or similar tools instead of a full access denial if patient requests a password.


HIMSS Analytics
Primary Care
(Sub-)Acute Care
Intermediate Care
Social/Home Care

RESULTS

PRIMARY CARE | (SUB-) ACUTE CARE | INTERMEDIATE CARE | SOCIAL/HOME CARE

The survey responses for these four care settings had very little variability, so results and recommendations are presented together

Primary Care

	Overall	Clinical	Gover-nance	Info Tech
Stage	4	3	6	4
Total	76%	68%	93%	77%
Stage 7	35%	21%	63%	75%
Stage 6	51%	43%	82%	25%
Stage 5	63%	65%	81%	47%
Stage 4	71%	51%	100%	83%
Stage 3	86%	83%	90%	90%
Stage 2	90%	83%	98%	94%
Stage 1	92%	81%	100%	100%

(Sub-)Acute Care

	Overall	Clinical	Gover-nance	Info Tech
Stage	3	0	6	4
Total	72%	56%	93%	82%
Stage 7	40%	29%	63%	75%
Stage 6	55%	42%	91%	42%
Stage 5	60%	52%	78%	63%
Stage 4	68%	42%	100%	86%
Stage 3	75%	62%	90%	90%
Stage 2	82%	67%	98%	94%
Stage 1	88%	69,8%	100%	100%

Intermediate Care

	Overall	Clinical	Gover-nance	Info Tech
Stage	4	3	6	4
Total	80%	71%	94%	82%
Stage 7	75%	79%	63%	75%
Stage 6	76%	77%	91%	42%
Stage 5	67%	64%	81%	63%
Stage 4	74%	54%	100%	86%
Stage 3	84%	80%	90%	90%
Stage 2	84%	72%	98%	94%
Stage 1	91%	77%	100%	100%

Social/Home Care

	Overall	Clinical	Gover-nance	Info Tech
Stage	4	3	6	4
Total	77%	66%	94%	82%
Stage 7	35%	21%	63%	75%
Stage 6	55%	43%	91%	42%
Stage 5	67%	65%	81%	63%
Stage 4	73%	52%	100%	86%
Stage 3	86%	83%	90%	90%
Stage 2	86%	76%	98%	94%
Stage 1	92%	81%	100%	100%

RECOMMENDATIONS

PRIMARY CARE | (SUB-) ACUTE CARE | INTERMEDIATE CARE | SOCIAL/HOME CARE

Combined results

- Patient engagement should be a critical focus area. Impove the patient portal capabilities to allow patients to manage their demographic information (e.g. billing address).
- Work to ensure that patients empowered by access to medical information including the abilities to manage access priviledges (e.g. by role, by section), to update personal health status data, to receive alerts/reminders etc.
- Consider a programme to increase the level of utilization and usage of patient provided medical data from telemonitoring devices, personal devices, biometrics etc.
- Develop and document a process for operationalizing actionalble data especially for clinical desicion support.
- Drive analytics during order enty based interactions through the use of decision support functions (e.g. alerts, notifications and reminders).
- Increase the use of ePrescribing with external pharmacies including CDS for drug-lab, drug-dose/range interactions etc.
- Use semantic data to manage population health (e.g. vacination programs, flu outbreak activitiy), to analyize and refine standards for best practice care treatment for the care community and integrate data into mulit-level clinical desicion support systems (e.g. Community-wide CDS) to use predictive functions (clinical and economic)
- Consider using Natural Language Processing not only in your traumatology, but also other departments to create discrete structured outputs from speaking clinician notes.
- Continue participating in international projects to achieve the goal of a community/region/nation-wide international EHR sharing.

HIMSS Analytics

Appendix

Scoring Details

BADALONA – SCORING DETAILS

OVERALL

	Clinical Focus					Governance Focus			Info Tech Focus		
	ALL	CCO	PCE	ANA	HIE	ORS	HAC	POL	ICT	UST	SEC
Stage	4	3	0	4	3	2	4	7	4	5	4
Total Achievement	76%	81%	49%	62%	80%	90%	92%	100%	82%	84%	78%
Stage 7	46%	0%		31%	69%		25%	100%	75%		
Stage 6	59%	67%	40%	47%	63%		88%	100%	38%	50%	25%
Stage 5	64%	88%	56%	48%	94%	63%	65%	100%	54%	75%	60%
Stage 4	71%	56%	38%	78%	52%	100%	100%	100%	73%	100%	92%
Stage 3	83%	94%	61%	78%	80%	60%	100%	100%	100%	75%	100%
Stage 2	85%	95%	50%	89%	93%	94%	100%	100%	100%	100%	75%
Stage 1	91%	100%	31%	75%	86%	100%	100%	100%	100%	100%	100%

PRIMARY CARE

	Clinical Focus					Governance Focus			Info Tech Focus		
	ALL	CCO	PCE	ANA	HIE	ORS	HAC	POL	ICT	UST	SEC
Stage	4	6	0	4	3	2	4	7	3	5	4
Total Achievement	76%	91%	55%	53%	82%	90%	90%	100%	72%	84%	79%
Stage 7	35%	0%		0%	75%		25%	100%	75%		
Stage 6	51%	83%	29%	25%	50%		80%	100%	0%	50%	25%
Stage 5	63%	100%	63%	30%	100%	63%	67%	100%	21%	75%	67%
Stage 4	71%	75%	40%	75%	46%	100%	100%	100%	68%	100%	92%
Stage 3	86%	100%	65%	83%	88%	60%	100%	100%	100%	75%	100%
Stage 2	90%	100%	63%	90%	100%	94%	100%	100%	100%	100%	75%
Stage 1	92%	100%	50%	88%	83%	100%	100%	100%	100%	100%	100%

Clinical Focus

CCO - Patient Care Coordination
PCE - Patient Engagement & Empowerment
ANA - Analytics
HIE - Health Information Exchange

Governance Focus

ORS - Organizational Strategy
HAC - Health Authority Capabilities
POL - Policy Level Initiatives

Info Tech Focus

ICT - Information & Comm. Technology Systems
UST - Standards & Interoperability
SEC - Security & Privacy

BADALONA – SCORING DETAILS

(Sub-)Acute Care

	Clinical Focus					Governance Focus			Info Tech Focus		
	ALL	CCO	PCE	ANA	HIE	ORS	HAC	POL	ICT	UST	SEC
Stage	3	3	0	0	2	2	4	7	4	5	4
Total Achievement	72%	67%	45%	47%	69%	90%	92%	100%	85%	84%	77%
Stage 7	40%	0%		25%	50%		25%	100%	75%		
Stage 6	55%	46%	36%	42%	50%		90%	100%	50%	50%	25%
Stage 5	60%	50%	53%	40%	75%	63%	58%	100%	64%	75%	58%
Stage 4	68%	42%	35%	63%	43%	100%	100%	100%	75%	100%	92%
Stage 3	75%	83%	55%	50%	63%	60%	100%	100%	100%	75%	100%
Stage 2	82%	90%	48%	75%	80%	94%	100%	100%	100%	100%	75%
Stage 1	88%	100%	25%	38%	85%	100%	100%	100%	100%	100%	100%

Intermediate Care

	Clinical Focus					Governance Focus			Info Tech Focus		
	ALL	CCO	PCE	ANA	HIE	ORS	HAC	POL	ICT	UST	SEC
Stage	4	3	0	7	7	2	4	7	4	5	4
Total Achievement	80%	78%	43%	95%	86%	90%	93%	100%	85%	84%	77%
Stage 7	75%	0%		100%	75%		25%	100%	75%		
Stage 6	76%	54%	68%	94%	100%		90%	100%	50%	50%	25%
Stage 5	67%	100%	44%	90%	100%	63%	67%	100%	64%	75%	58%
Stage 4	74%	42%	31%	100%	71%	100%	100%	100%	75%	100%	92%
Stage 3	84%	92%	60%	96%	82%	60%	100%	100%	100%	75%	100%
Stage 2	84%	90%	42%	100%	91%	94%	100%	100%	100%	100%	75%
Stage 1	91%	100%	0%	88%	92%	100%	100%	100%	100%	100%	100%

Clinical Focus

CCO - Patient Care Coordination
PCE - Patient Engagement & Empowerment
ANA - Analytics
HIE - Health Information Exchange

Governance Focus

ORS - Organizational Strategy
HAC - Health Authority Capabilities
POL - Policy Level Initiatives

Info Tech Focus

ICT - Information & Comm. Technology Systems
UST - Standards & Interoperability
SEC - Security & Privacy

BADALONA – SCORING DETAILS

SOCIAL/HOME CARE

		Clinical Focus									
	ALL	CCO	PCE	ANA	HIE	ORS	HAC	POL	ICT	UST	SEC
Stage	4	3	0	4	3	2	4	7	4	5	4
Total Achievement	77%	90%	52%	53%	82%	90%	93%	100%	85%	84%	77%
Stage 7	35%	0%		0%	75%		25%	100%	75%		
Stage 6	55%	83%	29%	25%	50%		90%	100%	50%	50%	25%
Stage 5	67%	100%	63%	30%	100%	63%	67%	100%	64%	75%	58%
Stage 4	73%	67%	44%	75%	46%	100%	100%	100%	75%	100%	92%
Stage 3	86%	100%	65%	83%	88%	60%	100%	100%	100%	75%	100%
Stage 2	86%	100%	47%	90%	100%	94%	100%	100%	100%	100%	75%
Stage 1	92%	100%	50%	88%	83%	100%	100%	100%	100%	100%	100%

Clinical Focus

CCO - Patient Care Coordination
PCE - Patient Engagement & Empowerment
ANA - Analytics
HIE - Health Information Exchange

Governance Focus

ORS - Organizational Strategy
HAC - Health Authority Capabilities
POL - Policy Level Initiatives

Info Tech Focus

ICT - Information & Comm. Technology Systems
UST - Standards & Interoperability
SEC - Security & Privacy

THANK YOU

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