A 25-YEAR RETROSPECTIVE OF HEALTH IT INFRASTRUCTURE BUILDING: THE EXAMPLE OF THE CATALONIA REGION

Supplementary material

Contents

Supplementary descriptions

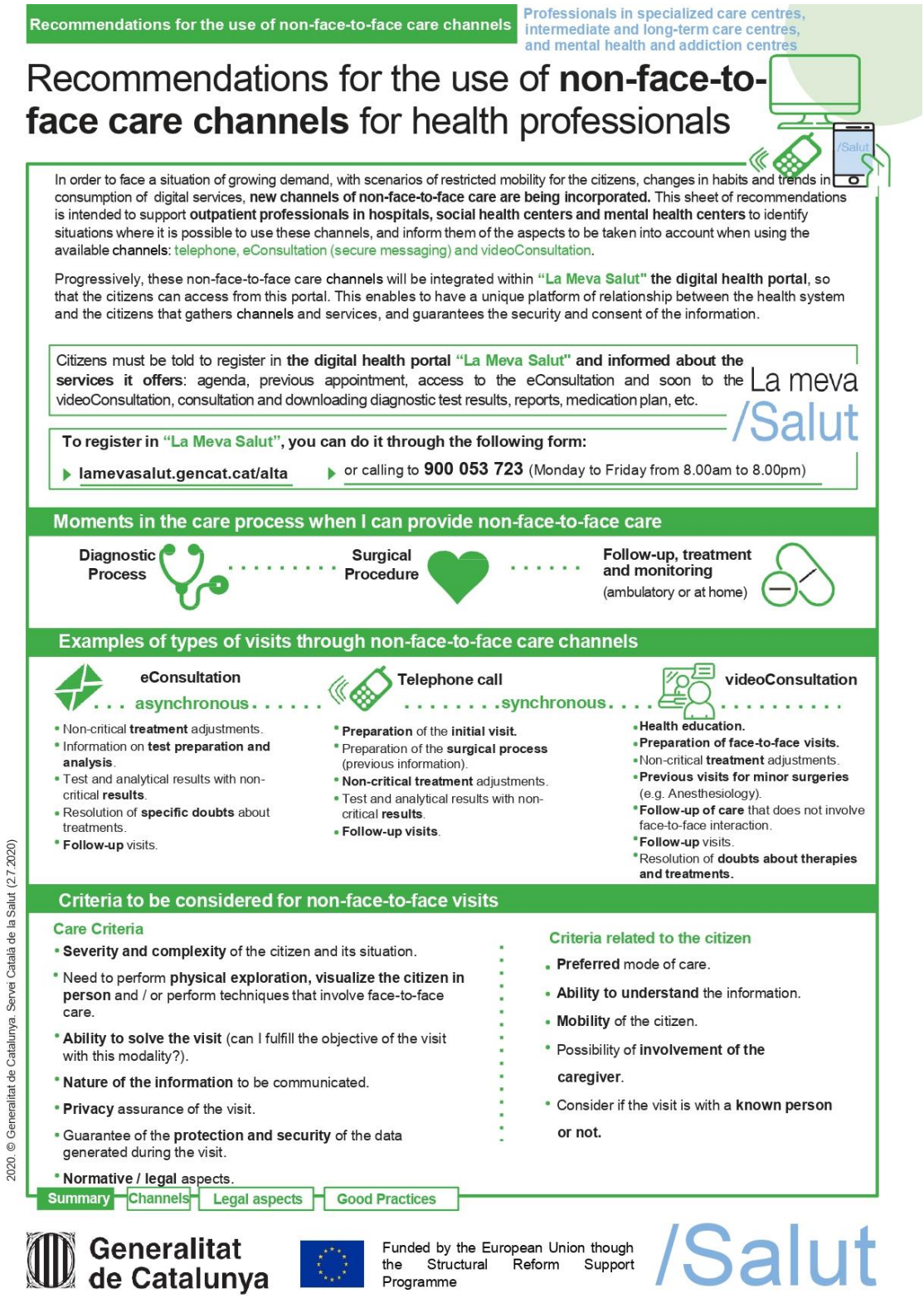
Drug prescription system

Outpatient drugs are prescribed by physicians (either GPs or specialists) providing care through public coverage and dispensed at private community pharmacies based on a co-payment system. Community pharmacies in Spain are regulated in number and location (i.e., fixed ratio per inhabitant and minimum distance between them) and have an agreement with the Healthcare Department for reimbursement. Drugs are co-payed based on socioeconomic status, with contribution by citizens ranging from 0% to 60%, and an approximate average of 11%. Drug prices are established nation-wide by the Spanish Ministry of Health, regardless of the co-payment or reimbursement status.

The categories of pharmaceutical co-payment are defined based on four levels of annual income as follows: recipients of social services (i.e., individuals perceiving a minimum integration income, unemployment allowance, unemployment benefit, or not qualifying for either of the previous, those on leave for work-related accident or professional disease), low socioeconomic status (i.e., individuals with annual incomes below € 18,000), middle socioeconomic status (i.e., individuals with annual incomes between € 18,000 and € 100,000), and high socioeconomic status (i.e., individuals with annual income higher than € 100,000). In addition, in 2021 additional categories for pharmaceutical co-payment exemption have been implemented (those with minimum vital subsidy, those with subsidies for a dependent child or minor in a permanent family foster regime or guardianship for adoption purposes; minors with a recognized disability of 33% or higher, and individuals perceiving pensions with an annual income lower than 11,200 €). The criteria and categories of pharmaceutical co-payment are currently registered in a central database of users (*Registre Central d'Assegurats* or RCA). The co-payment status is applied for the entire year according to the status by January 1st of the year in RCA. Individuals younger than 18 years are assigned according to their parents' status.

Recommendations for the use of Remote consultations

Recommendations for professionals



Recommendations for the use of non-face-to-face care channels

Professionals in specialized care centres, intermediate and long-term care centres, and mental health and addiction centres

Channels and requirements

eConsultation

- The **eConsultation** service enables the delivery of messages through a secure channel to citizens.
- It also **enables the attachment** of images, reports and other files.
- It is an asynchronous channel that offers **flexibility** in response.
- It is **initiated by the specialized, intermediate and long-term care professional** but, while the episode lasts, the citizen can also initiate conversations.

Telephone Call

- The **phone service** is a synchronous communication channel that only requires network coverage and a phone to make the visit.
- It is an adequate channel in visits where visual contact is not necessary.
- **It is initiated by the professional.**
- If, as a result of the **telephone care**, it is necessary to send to the citizen the results of diagnostic tests, reports or a new medication plan, this can be done through "La Meva Salut"

videoConsultation

- The **VideoConsultation** service allows to make audio and video calls using a computer, tablet or smartphone.
- This channel is suitable when attending in person is not required and visual contact allows a higher degree of resolution of the visit.
- **It is initiated by the professional.**
- If, as a result of the **videoConsultation**, the citizen needs to receive the results of diagnostic tests, reports or a new medication plan, this can be done through "La Meva Salut".

Legal aspects

Before starting

- Comply with data protection and privacy requirements before carrying out a visit (already integrated in the videoConsultation and eConsultation tools and, depending on the healthcare provider, in the telephone calls).
- Ensure that the citizens have given their consent, at least verbally, and that it is recorded in their medical records.
- Ensure that the citizen and the professional can carry out the consultation without violating their privacy.

The right to information

- Information about the privacy aspects can be consulted in the privacy policy and the conditions of use of the non-Face-to-Face Care.
- The citizen has the right to be informed about the use and treatment of the data generated during the care received.

During the non-face-to-face care

- Respect the privacy of the citizens in accordance with the legislation in force to carry out the teleconsultations.

Conduct and good practices

Main behavioral aspects and good practices to be considered

Before starting

- **Have time scheduled** in the agenda to make the visit.
- Review the **reason for the consultation**, the citizen's background and the ability to solve the consultation with the chosen channel.
- Ensure **availability and capacity** of the citizen to use the channel.
- Ensure coverage and / or access to the network / Internet.
- Learn the code of conduct to perform the appropriate attention to the situation.

During the visit

- Identify **yourself and the citizen**.
- Ensure the absence of connectivity problems with the citizen during the visit.
- **Communicate in a clear, understandable and adapted way** to the profile of the citizen.
- Verify that the citizen has understood the messages and understands the next steps.
- Be **careful with the assessment of the case**, the lack of direct contact may affect the capacity of evaluation.

After the visit

- Know the administrative procedures and the subsequent steps after the visit.
- **Incorporate the information** (clinical interpretation) to the medical record.

When does teleconsultation MAY NOT be recommended?

- First visits without prior case information
- Communication of sensitive information
- Visits where physical examination is required
- Follow-up visits for serious or highly complex cases
- In case of regulatory or legal contraindications
- If the fluency of the consultation cannot be guaranteed

La meva /Salut

Summary | Channels | Legal aspects | Good Practices

Generalitat de Catalunya

Funded by the European Union though the Structural Reform Support Programme

/Salut

Professionals in specialized care centres, intermediate and long-term care centres, and mental health and addiction centres

Requirements of **non-face-to-face care channels**

VideoConsultation Synchronous communication with audio and video

The **videoConsultation** service allows to make calls with audio and video.

The access by the citizens is done **through PC, smart phone or tablet.**

The **videoConsultation** can only be initiated by the healthcare professional

When IS it appropriate?

/ When the videoConsultation enables to solve the reason of the visit.
/ If the presence of the citizen is not required.
/ When the visual contact helps to a better communication.
/ When the availability of the video allows to give an answer to the reason of the consultation.
/ If the severity and complexity of the citizen allows it.
/ When the professional is responsible for the case, or he/she is aware of it.
/ If it provides information prior to a face-to-face visit.
/ When the privacy of the visit can be ensured (professional and citizen).

When MAY NOT be recommended?

/ For first visits without previous information of the case.
/ To communicate sensitive information to the citizen.
/ For visits in which the citizen must be physically examined.
/ In follow-up visits to serious cases.
/ When there is a legal or regulatory contraindication (minors under 16 years old, people under guardianship, dependents).
/ When the availability of the channel by the citizen or his ability to use it cannot be ensured.
/ When Internet access that allows the professional to carry out the video consultation fluently cannot be ensured.

1 / Scheduling of visits

- The citizen must be informed of the details of the consultation: the terms and conditions of this channel, how to connect and what will be done in the event of not being able to establish contact.
- The health center must define who is in charge of scheduling the visit and notify the citizen.
- From the clinical station, a new videoConsultation appointment must be created, which will notify by e-mail or SMS to the citizen about the day, time and service of the appointment.
- This visit must be associated with the professional's agenda.
- The citizen will be informed that the access to the videoConsultation will be available soon through "La Meva Salut" digital health portal.

2 / Start of the visit

- The citizen will be informed that, if as a result of the videoConsultation it is necessary to send him/her the results of diagnostic tests, reports or a new medication plan, he/she will find them in "La Meva Salut".
- The professional must adapt the space where the visit will take place and adjust the camera to the height of the eyes.
- On the **day and time** indicated, the professional must access the **virtual waiting room**, through the clinical station.
- Once the citizen is also connected, the professional will receive a notice that the consultation can begin.

3 / At the end

- Before ending, it must be ensured that the citizen has understood the information given and is clear about what the next steps are.

The clinical interpretation of the visit must be incorporated into the medical record, as is done in a face-to-face visit.

Citizens must be told to register in **the digital health portal "La Meva Salut" and informed about the services it offers**: agenda, previous appointment, access to the eConsultation and soon to the videoConsultation, consultation and downloading diagnostic test results, reports, medication plan, etc.

La meva /Salut

To register in "La Meva Salut", you can do it through the following form:

▸ **lamevasalut.gencat.cat/alta** ▸ or calling to **900 053 723** (Monday to Friday from 8.00am to 8.00pm)

Summary | Channels | Legal aspects | Good Practices

Generalitat de Catalunya

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Recommendations for the use of non-face-to-face care channels

Professionals in specialized care centres, intermediate and long-term care centres, and mental health and addiction centres

Legal and data protection aspects for telephone call, eConsultation and videoConsultation

The use of the **non-face-to-face care** channels means the transmission of personal data, especially health data, so it is necessary to ensure compliance with the regulations on data protection and privacy.

1 The right to information — How can I inform properly?

There must always be the will and **consent (at least verbal) of the citizen,** and this must be recorded in the medical record.

The citizen must receive information about:

- The provision of care through these channels and accept it through an agreement with the professional.
- The functioning of telematic channels.
- The treatment of their personal data.

This information can be consulted in the privacy policy and the terms of use of the Non-face-to-face care channels (eConsultation and videoConsultation).

/ Code of Ethics
/ Clinical standards
/ Data protection

Good practices

/ Be informed: be clear about the ethical and deontological code defined by your professional association.

/ Inform: provide citizens with clear and understandable information.

2 Before starting — How to ensure compliance?

The use of telematic channels or other non-face-to-face communication systems will be carried out according to the ethical code.

/ Privacy policy and terms of use

- Make sure that you have already agreed with the citizen to carry out this non-face-to-face activity.
- The privacy policy and the terms of use are available in the link of the corresponding teleconsultation channel.

/ Confidentiality during the visit
/ Identification of the participants

- The confidentiality and privacy of the citizen must be ensured. It is a priority to protect privacy in the professional-citizen relationship.
- The correct identification of the interlocutors (professional and citizen) is essential.

Current regulations

General Data Protection Regulation 2016/679.

Organic Law 3/2018, on the protection of personal data and guarantee of digital rights.

Law 41/2002, on patient autonomy and rights and obligations regarding clinical information and documentation.

Law 21/2000, on the rights of information concerning the health and autonomy of the patient, and clinical documentation.

Portfolio of rights and duties of citizens in relation to health and health care.

3 During the non-face-to-face consultation

Maintaining an attitude of respect for the citizen's privacy is essential.

- Make sure you have access to the appropriate software to perform the visit and record the health data.
- The treatment of personal data follows the same regulation as in the face-to-face visits.
- Register to the medical record the data and the activity that is essential.

Good practices

/ Do not use personal devices or addresses.

/ Use only those channels given by the provider centre.

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Recommendations for the use of non-face-to-face care channels

Professionals in specialized care centres, intermediate and long-term care centres, and mental health and addiction centres

Good practices manual

Recommendations of good practices when making non-face-to-face visits with the available channels in the Catalan health system (phone call, eConsultation and videoConsultation).

Cross-cutting elements to the various non-face-to-face channels

- Make the previous evaluation of the case and background.
- Access the medical record and other documentation required to make the visit.
- Guarantee the necessary conditions to make the visit properly and without interruptions.
- Ensure the confidentiality and privacy of the visit (for both the professional and citizen).
- Reserve time in the agenda for the visit and do not do other activities simultaneously.
- Check the correct functioning of the non-face-to-face care channels.
- Reserve a few minutes to involve the citizen when the visit is with the caregiver or guardian.
- A cautious attitude must be maintained with the evaluation of the non-face-to-face visit in order to guarantee the correct evaluation of the case.

Specific elements to carry out the visit with the different channels

	eConsultation	Phone call and VideoConsultation
1 **Before the vistit**	• Please note that the citizen, once the visit is scheduled in the agenda, will receive a message indicating that a response will be received within 48 hours. • The eConsultation can be initiated by both the citizen and the professional.	• Check the contact of the citizen (name, phone number, Individual health card number). • Consider the presence of an accompanying person to the visit and confirm their contact details if is in a different location from the attended citizen. • Check the proper functioning of the audio and / or video and check that the device has sufficient battery. • In the case of a video call, take into account: sufficient light in the consultation room, professional atmosphere, professional clothing and positioning of the camera at the eye level of the professional.
2 **During the visit**	• Give your greetings at the beginning and end of the visit. • Identify yourself. • Use a close, clear and easy to understand wording, adapted to the profile of the citizen. • Avoid writing the message in capital letters. • Structure the message in paragraphs. • Write clearly the therapeutic guidelines and recommendations regarding treatment. • Check the message before sending it. • Make sure that the message has been sent.	• Identify yourself and the citizen. • Explain how the visit will be approached. • Inform the citizen that the session is private and confidential. • Confirm that the citizen has privacy to carry out the visit. • Confirm that the citizen has time, battery, coverage and connectivity. • Conduct the clinical interview with: active listening, empathy and giving clear, easy-to-understand messages adapted to the profile of the citizen. • Summarize the visit and check that the citizen has understood the information given and the next steps (if necessary).
3 **After the visit**	• Send the agreed documentation / information. • Incorporate the clinical interpretation of the visit into the medical record, just as it is done in a face-to-face visit. • Plan the corresponding follow-up tasks.	

Citizens must be told to register in **the digital health portal "La Meva Salut" and informed about the services it offers**: agenda, previous appointment, access to the eConsultation and soon to the videoConsultation, consultation and downloading diagnostic test results, reports, medication plan, etc.

La meva /Salut

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lamevasalut.gencat.cat/alta or calling to **900 053 723** (Monday to Friday from 8.00am to 8.00pm)

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Professionals in specialized care centres, intermediate and long-term care centres, and mental health and addiction centres

Requirements of **non-face-to-face care channels**

Telephone Call Synchronous communication with audio

When IS it appropriate?

/ When the communication through telephone allows to solve the reason of the visit.
/ If the attendance in person of the citizen is not required.
/ When the severity and complexity of the situation and / or pathology of the citizen allows it.
/ If the professional is responsible for the case, or knows the case.
/ When information is provided prior to an on-site visit.
/ When the privacy of the visit can be ensured (professional and citizen).

When MAY NOT be recommended?

/ For first visits without previous information of the case.
/ To communicate sensitive information to the citizen.
/ For visits in which the citizen must be physically examined.
/ In follow-up visits to serious cases.
/ When there is a legal or normative contraindication (under 16 years old, people under guardianship, dependent people).
/ If it cannot be ensured that the channel allows the professional to make the consultation fluently.

1 / Scheduling of visits

- It is necessary to define in the scope of the health center who is the one in charge of scheduling the visit and notifying it to the citizen.
- The citizen must be informed of the details of the visit: the terms and conditions of this channel, how they will be contacted and what will be done in case they cannot establish contact.
- The visit must be linked to the professional's agenda.

2 / During the consultation

- It should begin with an initial dialogue to identify the professional and the citizen.
- The objective of the visit should be explained.
- It is necessary to explain what to do in case the connection is lost *.
- Confidence must be built with the interlocutor.
- Do not interrupt the citizen when he/she is speaking, listen to him/her empathetically.
- They should be asked to listen carefully and, in case of doubt, to ask them.
- The citizen must be informed that, in case it is necessary to send them the results of diagnostic tests, reports or a new medication plan, they will find them in **"La Meva Salut"**.

3 / At the end

- Before ending, it must be ensured that the citizen has understood the information provided and is aware of what the next steps are.
- The clinical interpretation of the visit must be incorporated into the medical record, just as it is done in a face-to-face visit.

Citizens must be told to register in **the digital health portal "La Meva Salut" and informed about the services it offers**: agenda, previous appointment, access to the eConsultation and soon to the videoConsultation, consultation and downloading diagnostic test results, reports, medication plan, etc.

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Recommendations for the use of non-face-to-face care channels

Professionals in specialized care centres, intermediate and long-term care centres, and mental health and addiction centres

Requirements of **non-face-to-face care channels**

eConsultation — Secure Asynchronous Messaging

The **eConsultation** service allows the delivery of written messages through a secure channel.

The **eConsultation** service enables the attachment of images, reports and other files.

1 / Start

- The citizen must be informed of the eConsultation channel before using it for the first time.
- The **eConsultation** is initiated by the professional and then can be initiated by both the citizen and the professional.
- The **eConsultation** allows the citizen to inform about the reason of the consultation.

/ Scheduled follow-up
/ Clinical deterioration
/ Consultation on diagnostic tests
/ Medication consultation
/ Possible adverse effects
/ Request for documentation
/ Clinical incidence
/ Scheduling of visits
/ Others

2 / Answer

- It is necessary to answer in a clear and simple way, and to indicate the steps to follow.
- If needed, the medication plan must be updated or other actions related to the reason for the consultation must be carried out.
- You must indicate the need or not to carry out successive activities.
- The citizen must be informed that he or she can find the results of tests, reports, diagnoses and the medication plan at **"La Meva Salut"**.

3 / End

- It is necessary to ensure that the answer is clear and understandable and that the citizen is informed on how to proceed afterwards.
- The clinical interpretation of the visit must be included in the citizen's medical record, just as it is in a face-to-face visit.

When IS it appropriate?

/ When attendance in person is not required.
/ If the consultation can be resolved by text message.
/ To solve specific doubts of citizens.
/ To provide indications prior to tests, analyses or face-to-face visits.
/ To make small adjustments in the treatment.
/ To communicate the publication of results to "La Meva Salut".
/ For any procedure request (clinical report, medication plan update, publication of discharges due to temporary disability to "La Meva Salut", test management, etc.).
/ To request tests or analysis by the professional after a follow-up eConsultation.
/ To resolve incidents or consultations resulting from a test or analysis.
/ To explain the results of tests..

When MAY NOT be recommended?

/ For initial visits without prior case information
/ To communicate sensitive information to the citizen
/ On visits where the citizen must be physically examined
/ In follow-up visits for serious cases
/ When there is a normative or legal contraindication (under 16 years old, people under guardianship, dependants)
/ When the citizen's ability to use the channel cannot be ensured
/ When Internet access cannot be ensured

Citizens must be told to register in **the digital health portal "La Meva Salut" and informed about the services it offers**: agenda, previous appointment, access to the eConsultation and soon to the videoConsultation, consultation and downloading diagnostic test results, reports, medication plan, etc.

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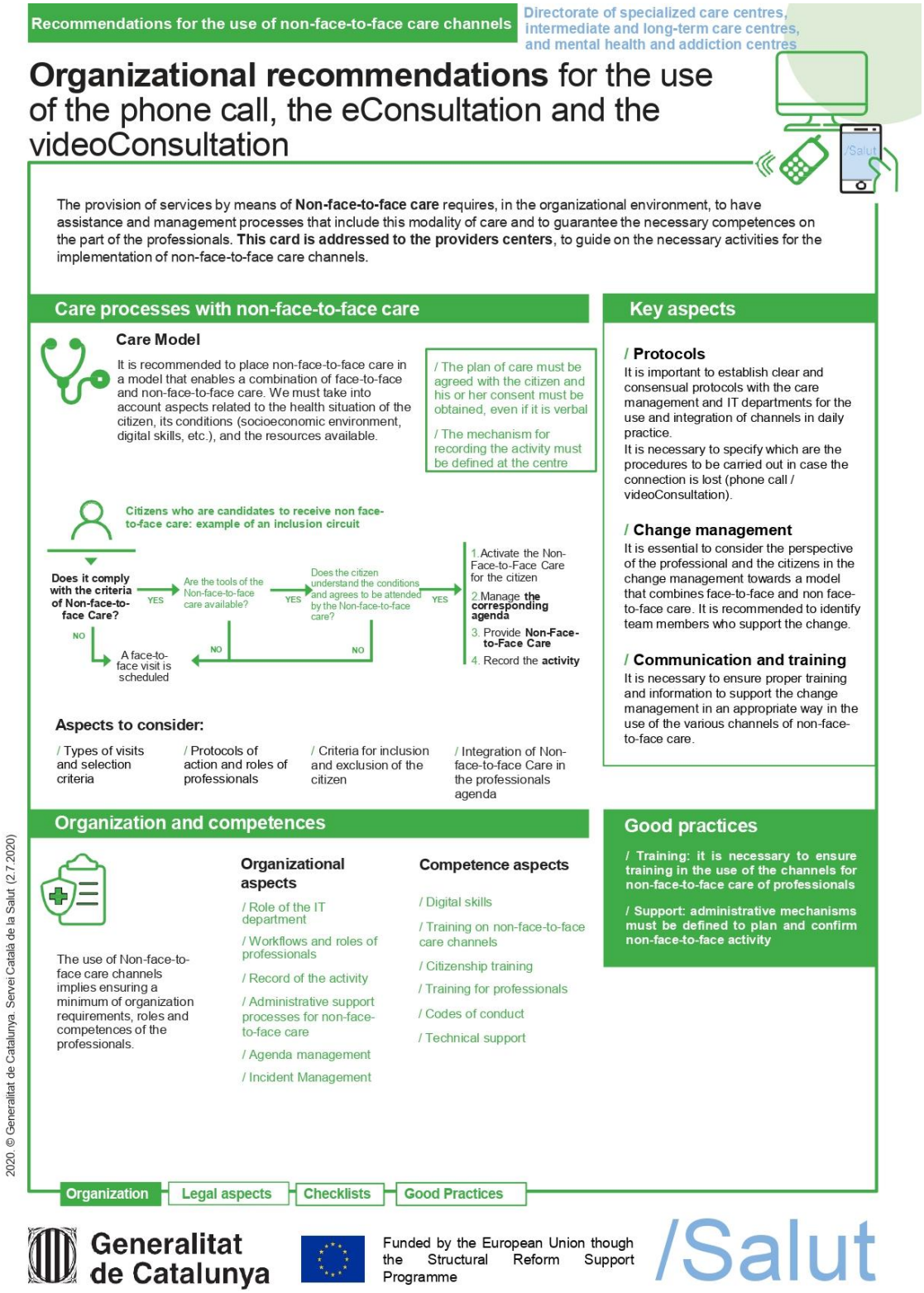
Recommendations for healthcare organizations



Recommendations for the use of non-face-to-face care channels

Directorate of specialized care centres, intermediate and long-term care centres, and mental health and addiction centres

Legal and data protection aspects for phone call, eConsultation and videoConsultation

The use of the **non-face-to-face care** channels means the transmission of personal data, especially health data, so it is necessary to ensure compliance with the regulations on data protection and privacy.

1 The right to information — How can I inform properly?

There must always be the will and **consent (at least verbal) of the citizen,** and this must be recorded in the medical record.

The citizen must receive information about:

- The provision of care through these channels and accept it through an agreement with the professional.
- The functioning of telematic channels.
- The treatment of their personal data.

This information can be consulted in the privacy policy and the conditions of use of the Non-face-to-face Care channels (eConsultation and videoConsultation).

/ Code of Ethics
/ Clinical standards
/ Data protection

Good practices

/ Be informed: be clear about the ethical and deontological code defined by your professional association.

/ Inform: provide citizens with clear and understandable information.

2 Before starting — How to ensure compliance?

The use of telematic channels or other non-face-to-face communication systems will be carried out according to the ethical code.

/ Privacy policy and terms of use

- Make sure that you have already agreed with the citizen to carry out this non-face-to-face activity.
- The privacy policy and the conditions of use are available in the link of the corresponding teleconsultation channel.

/Confidentiality during the visit
/ Identification of the participants

- The confidentiality and privacy of the citizen must be ensured. It is a priority to protect privacy in the professional-citizen relationship.
- The correct identification of the interlocutors (professional and citizen) is essential.

Current Regulations

General Data Protection Regulation 2016/679.

Organic Law 3/2018, on the protection of personal data and guarantee of digital rights.

Law 41/2002, on patient autonomy and rights and obligations regarding clinical information and documentation.

Law 21/2000, on the rights of information concerning the health and autonomy of the patient, and clinical documentation.

Portfolio of rights and duties of citizens in relation to health and health care.

3 During the non-face-to-face consultation

Maintaining an attitude of respect for the citizen's privacy is essential.

- Make sure you have access to the appropriate software to perform the visit and record the health data.
- The treatment of personal data follows the same regulation as in the face-to-face visits.
- Register to the medical record, the data and the activity that is essential.

Good pactices

/ Do not use personal devices or addresses.

/ Use only those channels given by the provider center.

Organization | Legal aspects | Checklists | Good Practices

Generalitat de Catalunya

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Recommendations for the use of non-face-to-face care channels

Directorate of specialized care centres, intermediate and long-term care centres, and mental health and addiction centres

Good practices manual

Recommendations of good practices when making non-face-to-face visits with the available channels in the Catalan health system (phone call, eConsultation and videoConsultation).

Cross-cutting elements to the various non-face-to-face channels

- ✓ Make the previous evaluation of the case and background.
- ✓ Access the medical record and other documentation required to make the visit.
- ✓ Guarantee the necessary conditions to make the visit properly and without interruptions.
- ✓ Ensure the confidentiality and privacy of the visit (for professional and citizen).
- ✓ Reserve time in the agenda for the visit and do not do other activities simultaneously.
- ✓ Check the correct functioning of the non-face-to-face care channels.
- ✓ Reserve a few minutes to involve the citizen when the visit is with the caregiver or guardian.
- ✓ A cautious attitude must be maintained with the evaluation of the non-face-to-face visit in order to guarantee the correct evaluation of the case.

Specific elements to carry out the visit with the different channels

	eConsultation	Phone call and VideoConsultation
1 Before the visit	• Please note that the citizen, once the visit is scheduled in the agenda, will receive a message indicating that a response will be received within 48 hours. • The eConsultation can be initiated by both the citizen and the professional.	• Check the contact of the citizen (name, phone number, Individual health card number). • Consider the presence of an accompanying person to the visit and confirm their contact details if they are in a different location from the attended citizen. • Check the proper functioning of the audio and / or video and check that the device has sufficient battery. • In the case of a video call, take into account: sufficient light in the consultation room, professional atmosphere, professional clothing and positioning of the camera at the eye level of the professional.
2 During the visit	• Give your greetings at the beginning and end of the visit. • Identify yourself. • Use a close, clear and easy to understand wording, adapted to the profile of the citizen. • Avoid writing the message in capital letters. • Structure the message in paragraphs. • Write clearly the therapeutic guidelines and recommendations regarding treatment. • Check the message before sending it. • Make sure that the message has been sent.	• Identify yourself and the citizen. • Explain how the visit will be approached. • Inform the citizen that the session is private and confidential. • Confirm that the citizen has privacy to carry out the visit. • Confirm that the citizen has time, battery, coverage and connectivity. • Conduct the clinical interview with: active listening, empathy and giving clear, easy-to-understand messages adapted to the profile of the citizen. • Summarize the visit and check that the citizen has understood the information given and the next steps (if necessary).
3 After the visit	• Send the agreed documentation / information. • Incorporate the clinical interpretation of the visit into the medical record, just as it is done in a face-to-face visit. Plans the corresponding follow-up tasks.	

Citizens must be told to register in **the digital health portal "La Meva Salut" and informed about the services it offers**: agenda, previous appointment, access to the eConsultation and soon to the videoConsultation, consultation and downloading diagnostic test results, reports, medication plan, etc.

La meva /Salut

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Recommendations for the use of non-face-to-face care channels

Directorate of specialized care centres, intermediate and long-term care centres, and mental health and addiction centres

Checklists for phone call, eConsultation and videoConsultation

This sheet is addressed to the care management and IT managers of health centers, and aims to provide a list of general recommendations of the main aspects to be considered in the use of non-face-to-face care channels.

Non-face-to-face protocols

- Define protocols with the typology of visits and the criteria for the use of non-face-to-face channels (phone calls, eConsultation and videoConsultation).
- Develop specific criteria for inclusion / exclusion of citizens for non-presential care.
- Establish registration circuits of the information collected during a non-face-to-face visit, as well as the mechanisms for registration of the non-face-to-face activity.
- Define the information to be provided to the citizen before and during an off-site consultation.

Organization and competences

- Define protocols for non-face-to-face care and the roles of the different professional profiles (leadership, administrative management, information systems, incident management, evaluation of results, experience and satisfaction, etc.)
- Integrate the agendas of the professionals with the non-face-to-face channels.
- Define protocols for recording non-face-to-face activity.
- Have a training plan and guidelines for professionals on the use of non-face-to-face channels

Channels and requirements

- Have hardware in good condition and supervised by the IT departments (cameras, microphones, laptops, tablets, smart phones).
- Ensure secure access to software for the use of non-face-to-face channels, and integrated with the center's information systems.
- Integrate the non-face-to-face channels with the medical record systems.

Legal scope and data protection

- Have the informed consent of the citizen, at least the verbal consent, which includes the channels of non-face-to-face care.
- The information regarding data protection is in the section on privacy policy and data protection and in the terms of use of the corresponding non-face-to-face channel.
- Have manuals of conduct for professionals to ensure the quality of the visit and the rights of citizens to privacy and data protection.

Key Aspects

/ Protocols
It is important to establish clear and consensual protocols with the care management and IT departments for the use and integration of the channels in daily practice.

/ Change Management
It is essential to consider the perspective of the professional and the citizens in the change management towards a model that combines face-to-face and non face-to-face care. It is recommended to identify people who support the change.

/ Training and channels
It is necessary to guarantee a correct training by the health center personnel in the use of the different channels of non-face-to-face care.

Channels

/ Equipment
It is necessary to ensure the availability of adequate material for the use of the non-face-to-face care channels. It is necessary to avoid the use of devices that are not provided by the same health centers.

/Software
it is necessary to maintain the programs of non-face-to-face care updated.

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/Salut

Supplementary Tables

Table S1. Characteristics of the information stored in the shared electronic health record of Catalonia.

Type of information	Structured	Observations	Standard	Inclusion date	Total volume of instances	2023 volume
Documents	No	Clinical reports, imaging-related reports, complementary test reports, laboratory reports, and pathological anatomy.	SNOMED-CT[a] (only the document type)	July 23, 2008	333,058,853	28,961,626
Medical images	No	WS[b] to publish the medical images taken at the centers and previously registered on SIMDCAT[c]	SERAM[d] or SEMNIM[e]	August 8, 2008	103,640,491	9,874,742
Pathological anatomy results	Yes	Data of the samples and results (conclusions)	SNOMED-CT	February 11, 2013	6,787,863	780,580
Clinical laboratory results	Yes	Laboratory determination data	LOINC[f]	May 7, 2014	72,634,412	8,966,224

Immunizations	Yes	Data on administered vaccines	SNOMED-CT	January 25, 2009	131,342,725	6,953,374
Diagnostics	Yes	Health problems and allergies identified by health centers	ICD-9[g] and ICD-10[h]	November 11, 2009	3,959,522	74,802
Chronic markers	Yes	Identification of patients with chronic illnesses (PCC[i]/MACA[j])	Proprietary	July 14, 2008	408,001	113,723
Spirometry	Yes	Collection of spirometry test data	SNOMED-CT	September 12, 2013	820,842	67,947
Cancer screening	Yes	Data from breast and colon/rectal cancer screenings	SNOMED-CT	July 20, 2023	155,474	155,474
Agendas	Yes	Information on visits to health centers planned by citizens	Proprietary	—[k]	—[k]	—[k]
Clinical parameters	Yes	Data on clinical variables or functional assessment scales	SNOMED-CT	October 3, 2017	276,471,118	35,452,776
Clinical course	Yes/no	Semistructured information—the content of each	Proprietary	October 26, 2017	121,549,421	18,944,002

		section of a clinical course is unstructured information				
DAIA[l] warnings	Yes	Nonpersistent information in the HC3[m] on alerts of files opened by the DGAIA[n]—RSA[o]	Proprietary	February 23, 2009	8194	1099
Organ donation notice	Yes	Nonpersistent information in the HC3 on the official register of organ donors—RSA	Proprietary	May 23, 2016	349,843	31,098
Notice of last wills	Yes	Nonpersistent information in the HC3 official register—RSA	Proprietary	January 2, 2012	153,753	22,054
Social consent	Yes	Information on citizens who have given consent to exchange health and social data	Proprietary	January 26, 2017	21,350	2363

Social data	No	Nonpersistent information in the HC3 of social data of the city councils	Proprietary	—[p]	—[p]	—[p]

[a]SNOMED-CT: Systematized Nomenclature of Medicine - Clinical Terms.

[b]WS: Web services.

[c]SIMDCAT: Digital Medical Imaging System of Catalonia.

[d]SERAM: *Sociedad Española de Radiología Médica* (Spanish Society of Medical Radiology).

[e]SEMNIM: *Sociedad Española de Medicina Nuclear e Imagen Molecular* (Spanish Society of Nuclear Medicine and Molecular Imaging).

[f]LOINC: Local Observation Identifiers Names and Codes.

[g]ICD-9: International Classification of Diseases, Ninth Revision.

[h]ICD-10: International Classification of Diseases, 10th Revision.

[i]PCC: *Pacient Crònic Complex* (Complex Chronic Patients)

[j]MACA: *Malaltia Crònica Avançada* (Advanced Chronic Disease).

[k]Not available—the historical data are not stored.

[l]DAIA: *Declaración de Actividades de Interés* (Declaration of Activities of Interest)

[m]HC3: *Història Clínica Compartida de Catalunya* (Shared Electronic Health Record of Catalonia).

[n]DGAIA: *Direcció General d'Atenció a la Infància i l'Adolescència* (General Directorate for Child and Adolescent Care)

[o]RSA: *Recompte de Serveis Assistencials* (Count of Healthcare Services)

[p]Not available—it is an exchange of data; there is no record regarding the number of requests

Table S2. Current storage of the SIMDCAT federated platform according to diagnostic imaging techniques (from inception and until 31/12/2023)

Diagnostic Imaging Technique	Total	
	Number of studies	Volume (GB)
Computed Radiography	36,676,932	411,680.41
Digital Radiography	22,907,474	259,682.67
Ultrasound	15,933,834	634,394.23
Electrocardiography	12,768,938	4,143.45
Computed Tomography	9,666,140	1,489,050.66
Mammography	5,023,883	354,210.57
Magnetic Resonance	4,664,926	389,807.17
External-camera Photography	1,704,032	28,766.93
Secondary Capture	1,551,937	36,242.46
Endoscopy	1,283,128	16,725.50
Nuclear Medicine	1,027,777	8,750.36
Other	981,211	14,201.85
Panoramic X-Ray	859,094	4,464.15
Fluoroscopy	639,584	23,695.14
X-Ray Angiography	616,858	118,270.14
Ophthalmic Tomography	477,406	11,364.07
Ophthalmic Visual Field	257,317	38.75
SR Document (Structured Report)	227,976	39.68
Positron emission tomography	177,965	16,684.57
Ophthalmic Photography	124,119	4,728.03
Visible Light	100,762	1,373.34
Presentation State	61,457	9.44
Document	58,971	22.69
Intra-oral Radiography	57,152	40.65
Ophthalmic Axial Measurements	8,844	36.49
Intraocular Lens Data	7,555	2.18
Digital microscopy	6,634	75.47
Optical Coherence Tomography	6,512	669.75
Ophthalmic Mapping	6,475	32.86
Bone Mineral Densitometry	4,766	12.16
Segmentation	3,935	835.99
Key Object Selection	2,838	0.08
Intravascular Ultrasound	1,197	176.95
Keratometry	42	0.01
General Microscopy	20	0.18
TOTAL	**117,897,691**	**3,830,229.01**

Table S3. ePROMs implemented within the Catalan Healthcare system.

ePROM	Speciality	Implementation date
EQ-5D-5L, EuroQol 5 Dimensions 5 Levels [1,2]	General/Family Medicine	08/03/2022
GAD-7, generalized anxiety disorder scale [3,4]	Psychiatry	15/11/2022
PHQ-9, depression scale [5–7]	Psychiatry	15/11/2022
IPSS, International Prostate Symptom Score [8,9]	Urology	15/11/2022
AUDIT, Alcohol Use Disorders Identification Test (pregnancy) [10–18]	Obstetrics	30/06/2023
Roland-Morris, lumbar pain disability assessment scale [19,20]	Rehabilitation	30/06/2023
WEMWBS, Warwick-Edinburgh Mental Well-being Scale [21,22]	General/Family Medicine	30/06/2023
NPQ, Northwick Park Neck Pain Questionnaire [23,24]	Rehabilitation	30/06/2023
SPADI, Shoulder Pain And Disability Index [25–27]	Rehabilitation	30/06/2023
WOMAC, knee and hip osteoarthritis questionnaire [28,29]	Rehabilitation	30/06/2023
IPAQ, International Physical Activity Questionnaire [30]	General/Family Medicine	30/06/2023
PURE-4, Psoriatic arthritis UnclutteRed screening Evaluation [31–33]	Rheumatology	30/06/2023
DDS17, Diabetes Distress Scale [34]	Endocrinology	30/06/2023
IIEF-5, International Index of Erectile Dysfunction-5 [35,36]	Urology	30/06/2023
Stoma-QoL, quality of life questionnaire for ostomy patients [37]	General and Digestive Surgery	28/09/2023
DHI, Dizziness Handicap Inventory [38,39]	Neurology	28/09/2023
Edinburgh Depression Scale (postpartum) [40,41]	Obstetrics	28/09/2023

Edinburgh Depression Scale (pregnancy) [40,42]	Obstetrics	28/09/2023
SF-MPQ, McGill Pain Questionnaire [43–46]	General/Family Medicine	28/09/2023
DME-E, emotional distress scale of patients with advanced illness [47,48]	General/Family Medicine	28/09/2023
DME-C, emotional distress scale of the primary caregiver of patients with advanced illness [49]	General/Family Medicine	28/09/2023
ESAS-r, Edmonton Symptom Assessment System-revised questionnaire [50,51]	Oncology	28/09/2023
EPIC-26, Expanded Prostate Cancer Index Composite [52,53]	Urology	13/12/2023
GDS-5, Geriatric Depression Scale (5 questions) [54–56]	Geriatrics	13/12/2023
ARMS, Adherence to Refill and Medication Scale [57,58]	General/Family Medicine	13/12/2023
PREDIMED, adherence to Mediterranean diet questionnaire (*PREvención con DIeta MEDiterránea*) [59]	General/Family Medicine	13/12/2023
SF-ICIQ, Short Form International Consultation on Incontinence Questionnaire [60,61]	General/Family Medicine	13/12/2023
HFS, Hypoglycaemia Fear Survey [62,63]	Endocrinology	13/12/2023
AUDIT, alcohol use disorders identification test (non-pregnant men/women) [11,13,16,18]	General/Family Medicine	13/12/2023
GDS-15, Geriatric Depression Scale (15 questions) [64,65]	Geriatrics	19/03/2024
SWEMWBS, Short Warwick-Edinburgh Mental Well-being Scale [22,66,67]	General/Family Medicine	19/03/2024
AUDIT-C, Alcohol Use Disorders Identification Test – Consumption (general population) [13,16,18,68]	General/Family Medicine	19/03/2024
AUDIT-C, Alcohol Use Disorders Identification Test – Consumption (pregnancy) [13,14,16–18,68]	Obstetrics	19/03/2024

FTND, Fagerström Test for Nicotine Dependence [69–71]	General/Family Medicine	19/03/2024
FTND, Fagerström Test for Nicotine Dependence (short) [69–72]	General/Family Medicine	19/03/2024
OSSS-3, Oslo Social Support Scale [73]	General/Family Medicine	19/03/2024
PVS, Partner Violence Screen scale [74,75]	General/Family Medicine	19/03/2024

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