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inDemand: Demand driven co-creation for public entities

CHALLENGE 3: HECRO

Pitch

Support for the diagnosis and treatment of chronic wounds.

Motivation and description

Chronic wounds are skin lesions of more than 4 weeks of evolution that have little or no tendency to healing. Their prevention and treatment is one of the most common care actions within the health activity of nursing professionals in the different care contexts (hospital, primary and social health care). The prevalence of chronic ulcers is high in all countries and settings. In the Region of Murcia the prevalence of this type of injury is 0.45% (about 5,000 people) of the population over 13 years[1].

Once the ulcer has developed, the correct identification of the type of lesion is a challenge for many professionals, as well as the subsequent choice of the appropriate product for treatment due to the continuous development of new materials and solutions for healing. This generates a wide variability in the response of professionals, which hinders the evolution of wounds by increasing the avoidable costs and treatment time of these injuries.

In order to determine the degree of the ulcer, different methods of evaluating the skin have been studied, among them: to do it jointly two professionals, to use the method of digital pressure or with transparent disc, being used more habitually in the National Pressure Ulcer Advisory Panel (NPUAP) and the PUSH. In spite of all this, in the evaluation process moisture lesions are often confused with grade I ulcers and pressure ulcers (UPP) of grade II (blisters) with grade III (superficial UPP). Photographs are a practical tool because they allow us to discern them and know exactly the different degrees.

Main objective

To develop a digital solution which permits the standardizing of diagnosis and the treatment of chronic wounds with a safe and reliable method, supporting the health professional through the recognition of images and facilitating the most adequate treatment according to the available clinical evidence, overcoming possible deficits in training and lack of time of the professionals.

Pilot functional scope

The co-creation would be led by a committee of experts formed by the Regional Group of Chronic Wounds of the Murcia Health Service (SMS), which will facilitate the recommendations as well as the tables of treatments and permanently updated pictograms.

The co-created solution will be tested and validated in one of nine SMS's Health Areas counting for the pilot with approximately 50 nursing users.

Compulsory requirements

1. The solution must be to try to identify the type of lesion through a photograph and other information added by the professional (presence of pain, type of exudate,...) through the recognition of images orienting the diagnosis but allowing the healthcare professional to make the final decision (validation of the offer or selection of another diagnosis).
2. The Solver will co-create an image bank and propose possible identification algorithms that will be validated and/or tagged with a diagnosis by Challenger.
3. The algorithm must validate whether the image quality is sufficient.
4. Once the doctor has selected a diagnosis, the solution must propose one or more possible treatments according to the SMS recommendations guide, allowing it to be continuously updated.

[1] https://www.anedidic.com/descargas/trabajos-de-investigacion/27/heridas_cronicas_area_salud_murcia.pdf

5. The treatment offered by the application will be presented through pictograms provided by the challenger, which indicate types of products and not trademarks, making it easier to read quickly.
6. The application must include the product sheets provided by the SMS in such a way that when proposing treatments it also indicates their cost. It must also show the product sheets for consultation by professionals.
7. The solution will have a consultation forum where professionals share doubts, tutored by SMS experts.

Optional requirements

1. To record the consent of the user/patient in the event that invasive or risky diagnostic or therapeutic procedures are necessary, or in the case of photographs that so require.

Clinical and Ethical and Data Protection

The solver undertakes to process the personal data to which it has access as a result of the execution of the contract, observing the principles required by data protection legislation, in particular those relating to data quality, data security and the duty of secrecy, as well as in accordance with the specific instructions received from the data controller, not using the data for any purpose other than the provision of the services described in the object of the contract.

Likewise, it undertakes to observe professional secrecy, maintaining absolute confidentiality on any data it may come to know on the occasion of compliance with the contract, in accordance with the level of protection established in the European data protection Regulation (EU 2016/679) of the European Parliament and of the Council, of 27 April 2016, relating to the protection of individuals with regard to the processing of personal data and Organic Law 3/2018 of 5 December, on the Protection of Personal Data and guarantee of digital rights, not communicating to any third party the data provided by the data controller. The data controller will determine whether, at the end of the services provided by the data processor, the personal data should be destroyed, returned to the data controller or handed over, where appropriate, to a new data processor.

The destruction of the data shall not proceed when there is a legal provision obliging their conservation, in which case they shall be returned to the data controller, who shall guarantee their conservation for as long as such obligation persists. This obligation will continue even after the end of their relationship with the person in charge.

The solver shall ensure and be responsible for ensuring that its employees and/or collaborators receive the data only to the extent that their knowledge is necessary for the performance of the object of the contract.

In the event that the company uses the data for purposes other than those stipulated, communicates them or uses them in breach of the instructions set out in this contract, it shall be liable for the infringements set out in Articles 70 et seq. of Organic Law 3/2018 of 5 December on the Protection of Personal Data and the guarantee of digital rights, in which it has incurred.

Technological

If the solver proposes a solution to be run in smart phones: The solution will notify SMS systems about certain events and situations. Ideally via ´HL7´ messaging, but web services could also be an option. This information may include registration status, activity, progress and periodic (summarized) clinical information. The IT systems needed for running the solution will be hosted by the solver. If the complexity of the connections is too high or the personal data could be at risk, these systems could be hosted in local servers of the SMS. This will be established in a technical session at the beginning of the project. Anyway, the solver will provide mechanisms to guarantee that the Servicio Murciano de Salud can exploit the data. No prior Challenger data is expected to be available, meaning all users will start as new users in the system. The repository of documents and resources to be shared with the end users will be supplied and / or validated by the SMS.

Expected impact and KPI

Satisfaction:

- System success rate through image recognition. Target: area under the ROC curve (AUROC) >0.8.
- Satisfaction of the health professional with the tool through a survey. Target: 8/10

Efficiency:

- Cost savings compared to the usual average for each case, adjusted by type of wound and degree of severity. This is an internal indicator of the challenger that will not have an impact on the solver.
    - Objective: 10% of savings

Results in health:

- Key performance indicator: Number of days of treatment adjusted by type of wound and degree of severity. Goal: 20% reduction adjusted for wound type and degree of severity.

Business opportunity

The current epidemiological and socio-economic situation surrounding chronic ulcers and wounds has turned them into a major health problem, as they can be, depending on the case, a cause (diabetic foot amputation) or a consequence (pressure ulcers, vascular ulcers) of disability or dependence. Many chronic wounds, due to the absence of adequate treatment and care, end up being perpetuated over time (even for many years) and sometimes lead to major problems such as amputation of limbs, which are a source of great suffering for patients, families and caregivers, reducing their quality of life.

Therefore, the management of this type of injuries is a challenge that health professionals and services face on a daily basis. For example, in Spain the prevalence of pressure ulcers in 2013 was 7%-8% in hospitals, 7.9%-9.1% among people in home care in primary care, and 12.6-14.2% in social health centers, with an increasing trend at all levels of care. In the SMS during 2014, only in one of the 9 health areas, the expenditure allocated solely to active dressings (those usually used in ulcers to perform cure in a humid environment) amounted to € 103,726.41 euros (source of internal data from the management of the area).[2]

Given the high prevalence of the problem an improvement in chronic wound care could have an enormous impact both on the cost of the material used and on the time spent by the professionals involved in the treatment.

[2] https://www.anedidic.com/descargas/trabajos-de-investigacion/27/heridas_cronicas_area_salud_murcia.pdf