

# BD<sub>4</sub>QoL

BIG DATA FOR QUALITY OF LIFE

## MO - START

### 1. ABOUT THE BD4QoL PROJECT

Head and neck cancer can take away a patient's "right to feel human," and its impact on physical appearance, physical functioning, psychological status and general quality of life (QoL) can be devastating. Over the past several decades, the number of patients surviving head and neck cancer (HNC) has increased; this makes lifelong surveillance critical. Current survivorship care plans mostly focus on functional and health conditions of treated patients, whereas socioeconomic determinants of quality of life are often neglected due to difficult data collection.

BD4QoL aims at improving head and neck cancer survivor's Quality of Life through person-centred monitoring, patients's support after treatment and personalised follow-up . The project will last 60 months starting from 1 January 2020, with a total funding of 4 985 975 € under the H2020 research programme.

For more information about BD4QoL, visit: [www.bd4qol.eu](http://www.bd4qol.eu)

### 2. OBJECTIVES OF THE BD4QoL PROJECT

The **widespread technologies** for **social communication** and **unobtrusive personal monitoring** embedded in smartphones and object we commonly use and in our living environments have the potential to unobtrusively **collect wealth of indicators of individual QoL**.

BD4QoL takes advantage of these technologies to **improve head and neck cancer survivor's Quality of Life**. Physical activity, social interactions, sleep and health data automatically collected by a mobile app installed on the patients' smartphone over two years after treatment will be analysed to early intercept quality of life deterioration, health risks, prevent long term consequences, informing patients and caregivers for personalised interventions.. The BD4QoL dedicated chatbot "BiDi" will offer advice on quality of life issues, support self-management and empower patients in better recovery.

### 3. BD4QoL PROJECT - HOW IT WORKS?

would you like a closer look on how BD4QoL works and is implemented? See the project's presentation video: <https://youtu.be/90YmWxtytn0>

#### 4. INNOVATION AND IMPACT

BD4QoL is expected to impact on survivors' quality of life and on care delivery:



##### **New dimension in survivors' management**

The **personalization of care** after cancer treatment, which disrupts the traditional dichotomy between physicians' aim to assure patient's longing for a future "normal" life.

##### **Facilitate survivors' reporting quality of life problems**

Mobile apps **will measure human conducts and affective traits** by progressing **beyond current questionnaire-based methods.**



##### **Early detection of quality of life deterioration**

**First attempt** to research an **Advanced Risk Model** for the early detection of health-related quality of life deterioration risks in HNC patients. BD4QoL is expected to reduce the proportion of patients experiencing a clinically meaningful deterioration of global quality of life between at least 2 visits during post-treatment follow-up.

##### **Improve Point of Care support and overall quality of care**

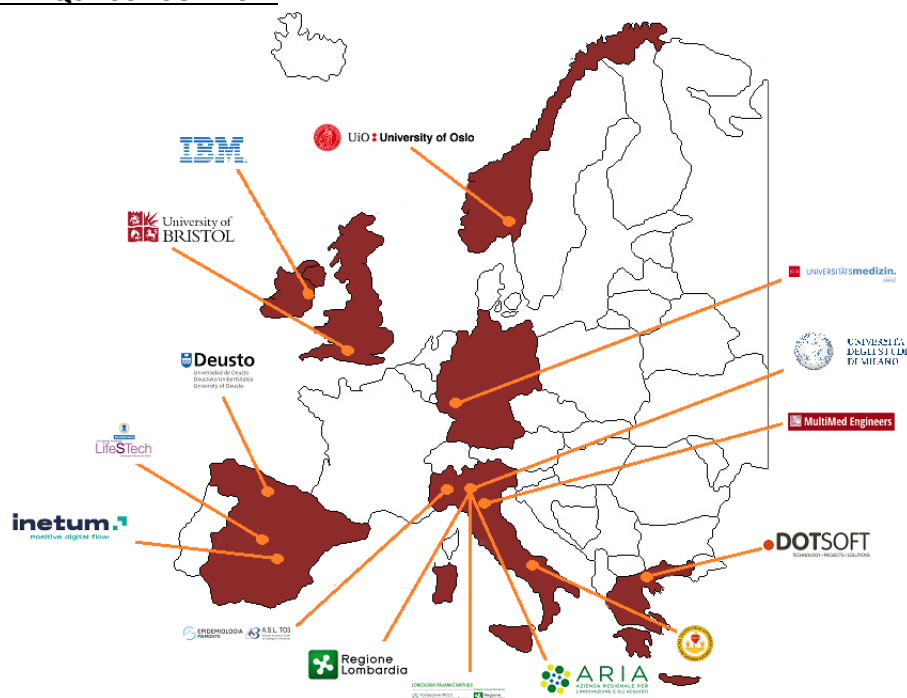
Improving Point of Care support through **Decision Support Systems** and Workflow Management Systems, for **personalised follow-up** and early intervention.



#### 5. THE BD4QoL WORKPLAN

- **WP1** sets out the ethics requirements that the project must comply with.
- **WP2** aims to characterize the new sources of personal data which will be collected in BD4QoL, in addition to traditional ones: behavioural and affective traits data. The ultimate objective is to leverage modern data collection technologies.
- **WP3** builds a flexible and extensible platform to collect personal HRQoL and other health data from patients that underwent HNC treatment, and store them in a related data management infrastructure, to be available for relevant monitoring purposes.
- **WP4** aims to dispatch, interpret, and present data collected in WP3 to the Points of Care involved in patients follow up, to provide insights and to support decisions.
- **WP5** aims at engaging the patient with her HRQoL management, based on counselling interventions delivered through an e-coaching interface, integrated in the mobile app developed in WP3, including a patient-physician communication channel, linked with PoC support services.
- **WP6** Statistical and machine learning approaches will be developed to predict changes in levels of QoL and classes of risks for different types of outcomes, aimed to improve support and PoC decision making.
- **WP7** is devoted to the execution of the clinical study with the overall objective to demonstrate the potential of big data and AI for monitoring HNC survivors' health and QoL.
- **WP8** aims at conducting a Health Technology Assessment for the BD4QoL system. The endpoint of the assessment will be the potential in improving HRQoL in patients treated for HNC while optimizing the related economic and social aspects.
- **WP 9** addresses all the activities relevant to the exploitation, dissemination and communication of the project's results.
- **WP 10** assures the fulfilment of contractual obligations and the achievement of high-quality results within the timeframe and the resources foreseen for the project.

## 6. THE BD4QoL CONSORTIUM



The Consortium is composed of [16 organizations](#) and one clinical linked party, located in 7 different European countries, including:

- 2 cancer reference centers ([Fondazione Casa Sollievo della Sofferenza](#), [Fondazione IRCCS Istituto Nazionale dei Tumori di Milano](#)) and 1 linked party University Hospital Bristol NHS Foundation Trust
- 6 research institutions ([Univeristà degli Studi di Milano](#), [Univeridad de la Iglesia de Deusto](#), [Universidad Politecnica de Madrid](#), [University of Bristol](#), [Universitetet i Oslo](#), [University of Mainz](#))
- 2 large corporations ([IBM Ireland Ltd.](#) and [ARIA S.P.A.](#)) and 1 industrial partner ([Inetum](#))
- 2 SMEs ([Dotsoft](#) and [Multimed Engineers Srl](#))
- 2 Government/Public bodies ([Regione Lombardia](#), [Azienda Sanitaria locale T03](#))

## 7. BD4QoL KICK-OFF MEETING

The kick-off meeting took place in Milan, on January 30<sup>th</sup> – 31<sup>st</sup>, 2020, hosted by the Istituto Nazionale dei Tumori di Milano.

On the first day, after a general overview of the project, partners presented themselves and each work package; on the next day parallel sessions on technical and clinical issues took place.

Among the objectives of the meeting it was important to define the urgent works to be performed by all partners, to address open issues related to the clinical study and to agree a work plan for the next months ahead.

At the same time it was discussed and agreed on the joint work to be conducted by clinical and technical partners in different work packages and for the definition of the devices to be used for QoL data collection.

Finally, WP leaders were chosen and a first General Assembly meeting took place in order to vote for the submission of amendments.

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