

NATIONAL REFERENCE CENTER FOR BURKHOLDERIA CEPACIA COMPLEX AND OTHER GRAM NEGATIVE NONFERMENTERS ANNUAL REPORT 2018

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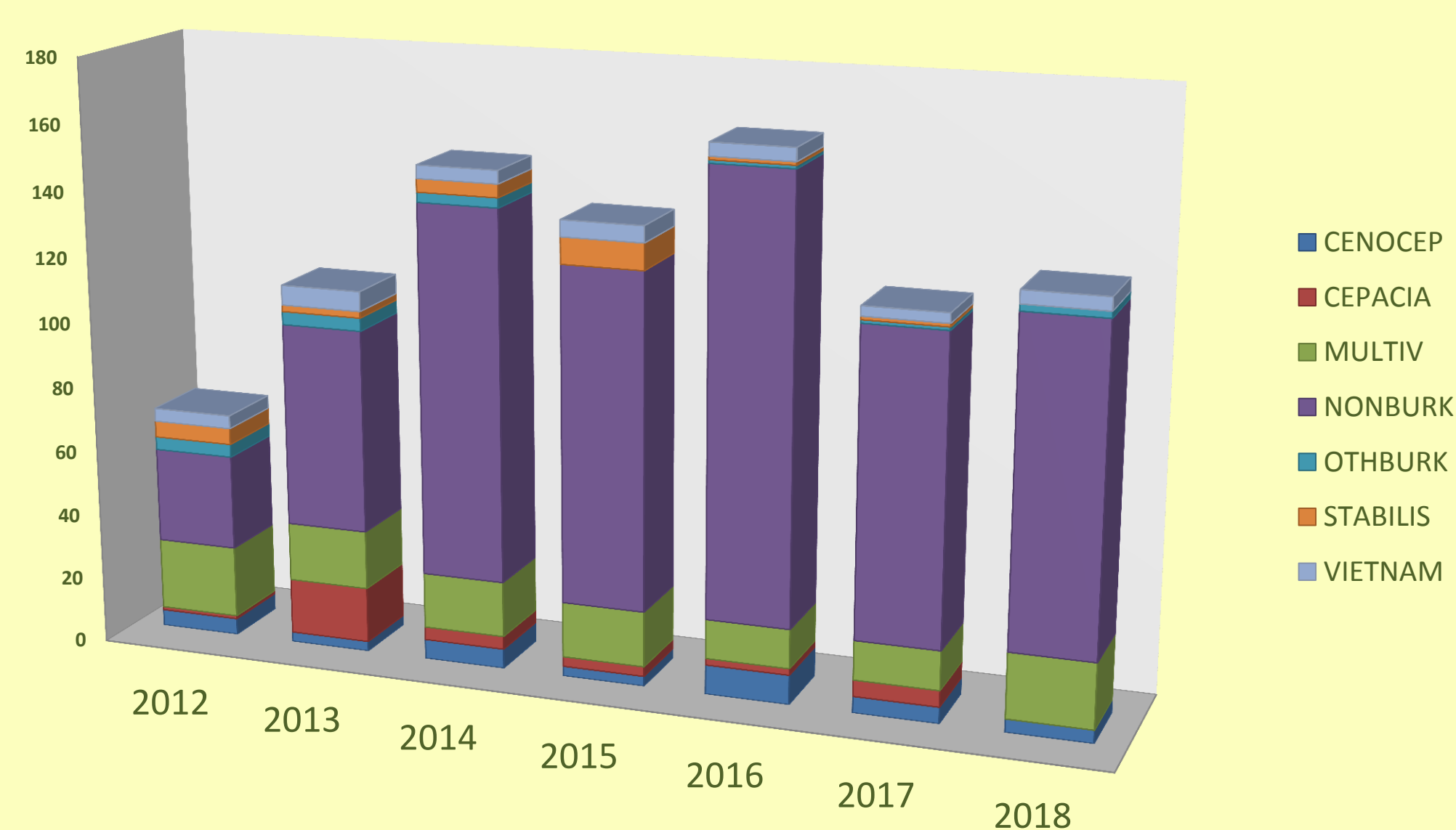
BACKGROUND

The Belgian national reference centre for BCC and other Gram negative non fermenters (GNNF) is a consortium of the laboratory of microbiology of UZ Brussel and the laboratory of microbiology of UGENT. The main task of the consortium is the surveillance of BCC and other GNNF microorganisms in CF patients. Belgian laboratories send each year up to two BCC and GNNF isolates (excluding *P. aeruginosa* and *Acinetobacter* spp.) from each colonized patient. Each strain is first identified to the genus level of by MALDI-TOF mass spectrometry at LM-UZ Brussel. Antibiotic susceptibility tests are performed on all submitted isolates. Secondly, RAPD is used if a previous isolate of BCC and GNNF isolates from the same patient has been previously identified at the NRC, in order to check if it has to be further identified. All first isolates, isolates that do not match with previous ones from the same genus and each first isolate within a period of 12 months, are sent to LM-UGent for further characterization. This consists in the identification to the species level by gene sequence analysis (*recA*, *nrpA*, *rpoD* or 16S rRNA depending on the genus of the isolates) and MLST typing based on WGS data. This MLST characterization of the isolates is performed in order to further investigate the possible association between some subtypes and pulmonary unfavourable disease evolution in CF patients.

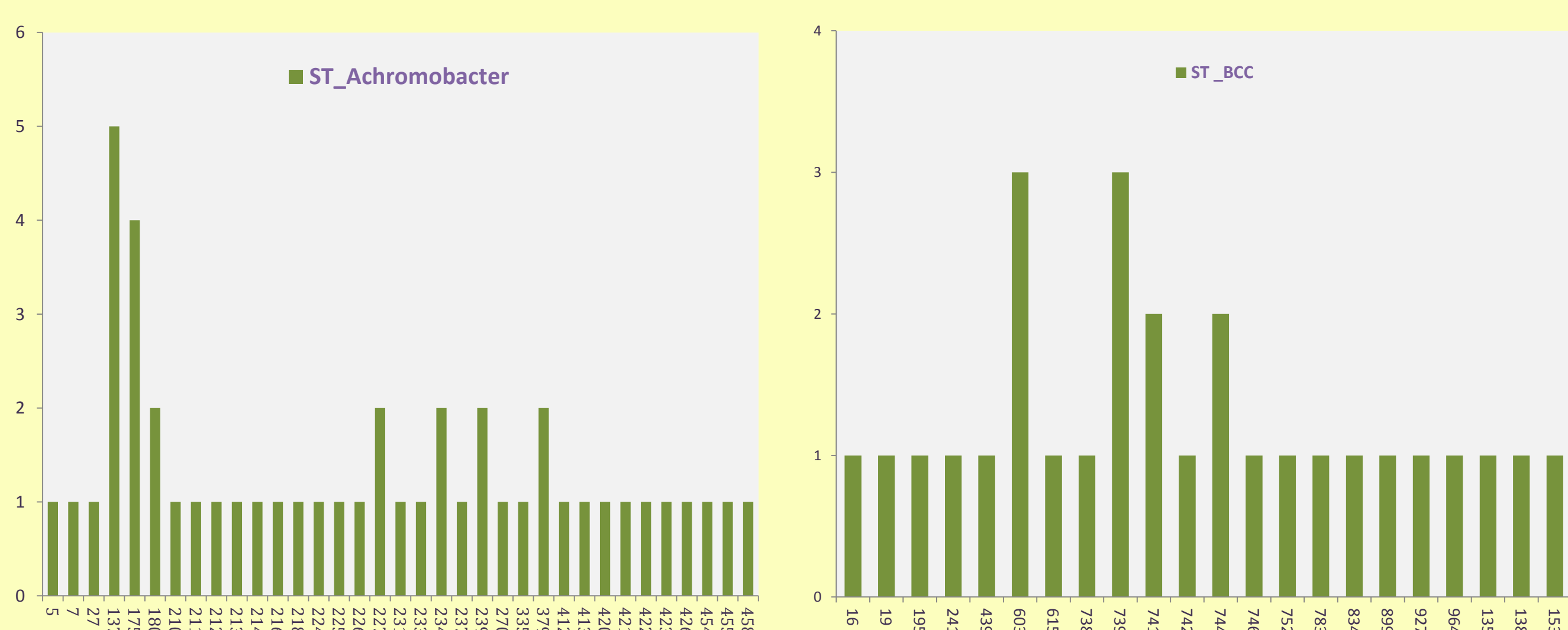
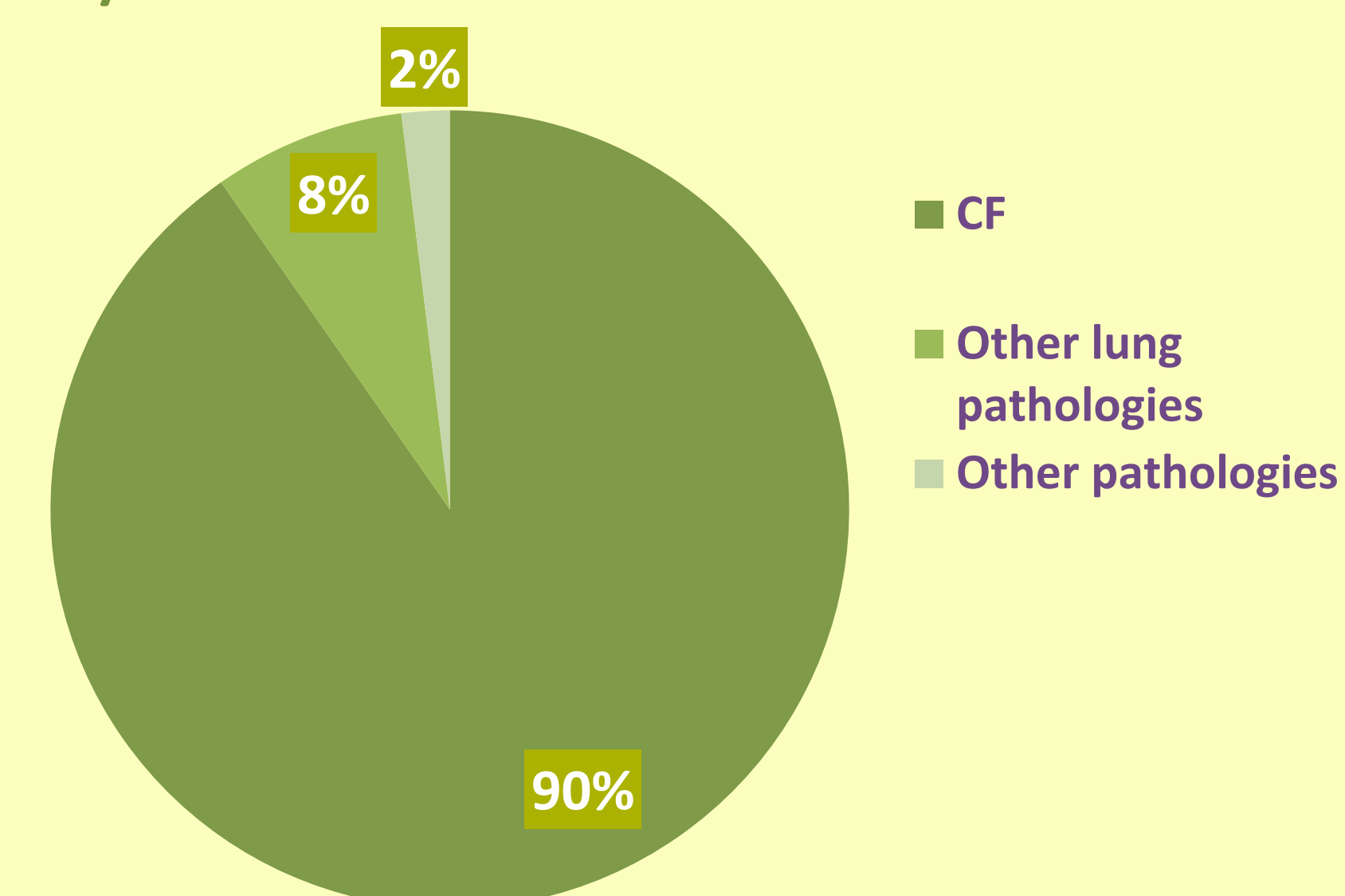
RESULTS

- In 2018 we received 128 BCC-GNNF isolates from 103 patients. This number is comparable with previous years (average 126 cases from 2012 to 2017). Among the patients, 93 were CF patients, 8 had other lung diseases and 2 were affected by other diseases.
- A total of 30 BCC and other *Burkholderia* species were referred to our NRC, 67% of which were *B. multivorans*, followed by *B. cenocepacia* (13%) and *B. vietnamiensis* (13%).
- A total of 98 GNNF were referred to our NRC, 49% of which were *Achromobacter* spp., followed by *Stenotrophomonas maltophilia* (23%) and other GNNF at lower proportions.
- A total of 48 *Achromobacter* spp. were referred to the NRC, 71% of which were *Achromobacter xylosoxidans* followed by *A. insuavis* (15%) and other *Achromobacter* spp. at lower proportions.
- A total of 22 different BCC ST types were found among BCC isolates. ST-603 and ST-739 were the most frequent types among *B. multivorans* isolates.
- A total of 35 different *Achromobacter* different ST types. Just like previous years, ST-137 and ST-175 were the most frequent ST's among *A. xylosoxidans* isolates in CF patients.
- These 2 ST clones should be further investigated to study whether they are sharing the same source or if they are only representing the most frequent community acquired types. It is also interesting to mention that the ST-137 was also recently isolated from CF patients in France in 5 centers spread over the country.

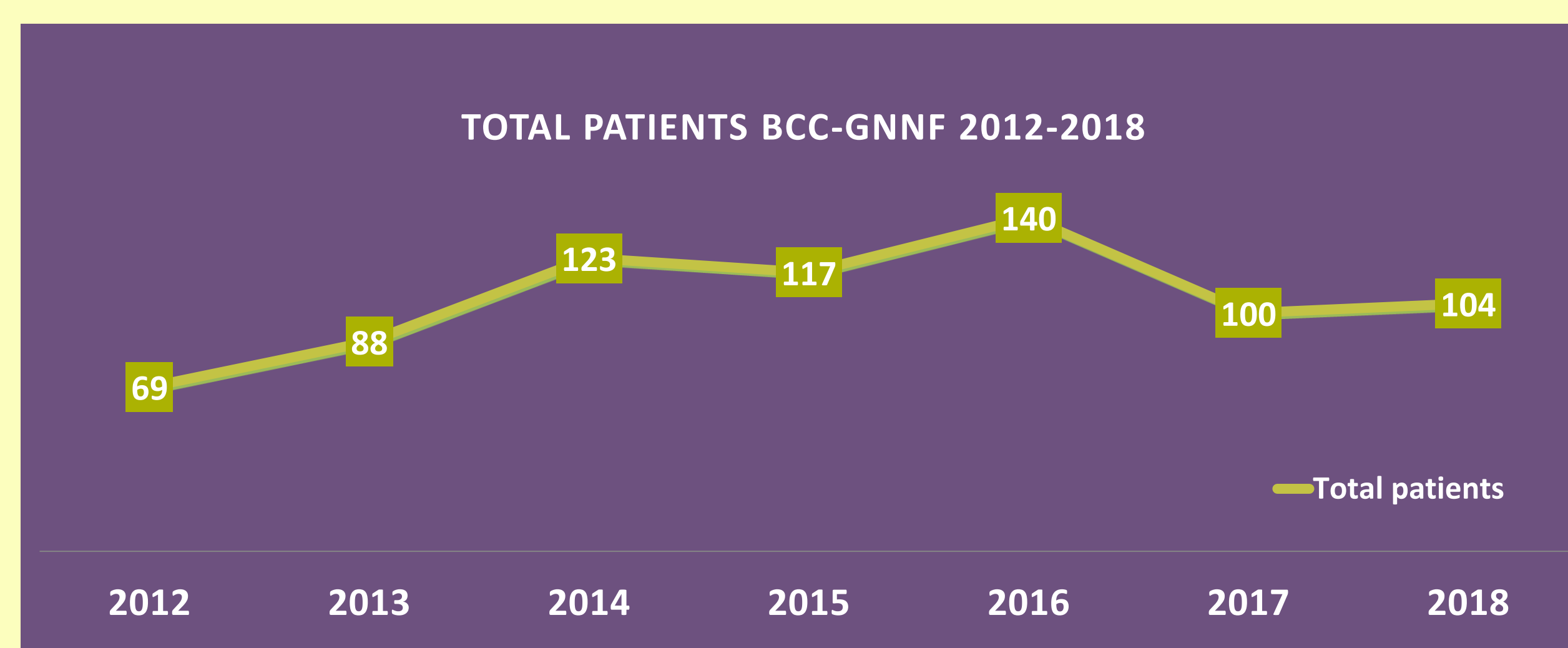
TOTAL BURKHOLDERIA EN NON-BURKHOLDERIA SPECIES 2012-2018



CF/Non-CF PATIENTS IN 2018



TOTAL PATIENTS BCC-GNNF 2012-2018



CONCLUSION

- The proportion of *Burkholderia* spp. isolates has been declining over the years while the proportion of other GNNF isolates has been increasing.
- The reason for these trends should be further investigated. Optimal measures and/or cures have been given against *Burkholderia* spp. while less optimal for other GNNF in CF patients?
- Three Belgian centers are contributing to a large proportion of the referred isolates. Other Belgian centers should include more cases in order to obtain a better representation of the distribution of cases over the whole country.