About the abbreviations in the image file names:

H-N-UXT is an abbreviation for head, neck, and upper extremities. LEXT is lower extremities.

"Thin" slices are 1 mm slices with a 0.5 mm spacing (i.e., they are overlapping). "3x3" are 3 mm slices with a 3 mm spacing (not overlapping).

There will be image series reconstructed in BONE (using a sharp filter) and ST (soft tissue, using a smooth filter). Sharper edges mean more noise; smoother edges mean less noise.

Some advice: If you are making a 3D rendering, it's probably best to choose a THIN ST dataset of the anatomy of interest to achieve the smoothest appearance in your 3D rendering. Thicker slices (i.e. "3 x 3") and/or BONE may result in a more jagged or noisy appearance. The best way to decide what is best for a given application is to try the reconstruction using several different series to see which is best.

About the image resolution/pixel dimensions:

The NMDID database was created retrospectively from CT scans performed for research and death investigation. The protocol was not perfectly uniform in all respects. For example, decomposed bodies were scanned using a slightly different protocol from that used for non-decomposed bodies, and the pediatric protocols differ slightly from the adult protocols. Further, images of different decedents or different anatomy may have different fields-of-view (where field-of-view refers to the reconstructed axial image diameter), resulting in different in-plane resolution (where in-plane resolution refers to the pixel dimensions in the axial images).

To summarize, the field-of-view is not the same for all image series in NMDID (it depends on the size of the decedent and which anatomy is imaged), and the in-plane resolution (pixel size) is therefore not the same for all image series. What is constant is that each image is saved in a 512 x 512 matrix (i.e., 512 pixels in each direction), and the slice thickness is either 1 mm or 3 mm (as specified in the series name and the DICOM headers).

To determine typical pixel sizes, one can measure the width of the axial image using a measurement tool in a DICOM viewer and then divide that width (i.e., the field-of-view, FOV) by 512 to obtain the pixel size. (For example, if an image is 60 cm wide, it is 600 mm wide, and 600 mm/512 = 1.17 mm. Therefore, each pixel in the 2D image is 1.17 mm x 1.17 mm.)

Generally, the FOV is between 40 cm and 60 cm, resulting in pixel dimensions of 0.8 mm to 1.2 mm on a side.

The voxel volume would be (typically) in the range of 0.8 x 0.8 x 1 mm^3 up to 1.2 x 1.2 x 1 mm^3, if one is considering thin (1 mm) image datasets.

The process of de-identification used for NMDID does not remove the scale information from the DICOM file header. The pixel dimensions and other non-identifying information is still embedded in each image file header. However, the scale information may not automatically be displayed. (It depends on the DICOM viewer and which fields from the header the DICOM viewer is programmed to display automatically.)

To determine the exact resolution for a particular image dataset, one can drag a single DICOM image from the series into ImageJ (free image viewing software), and then select "Show Info" from the Image menu. This will open the header file for that image, and the header file will have the exact pixel dimensions for that image (in mm) as one of the fields in the header. All of the other images within the same series will have the same resolution. Slice thickness and increment are also fields in the header file. (As are many other parameters!)

DICOM software packages usually have some way of displaying the header information, but the name of this command varies from package to package. It might be called "header dump" or "image information" or “view header” or something else.